



FLOOR AND CEILING TYPE AIR CONDITIONERS

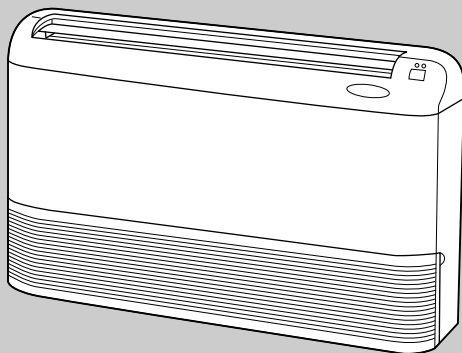
No. OB239

# SERVICE MANUAL

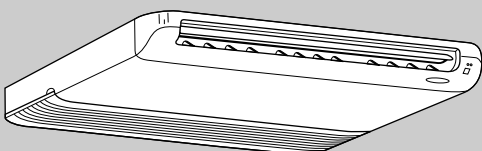
Wireless type  
Model

**MCF-13NV-**E3 (WH) · **MUCF-13NV-**E3

(When installed on the floor)



(When installed on the ceiling)

MCF-13NV - E3

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# 1

## TECHNICAL CHANGES

**MCF-13NV - E2 → MCF-13NV - E3**

1. Indoor unit model name has changed.

**MUCF-13NV - E2 → MUCF-13NV - E3**

1. Outdoor unit model has changed.

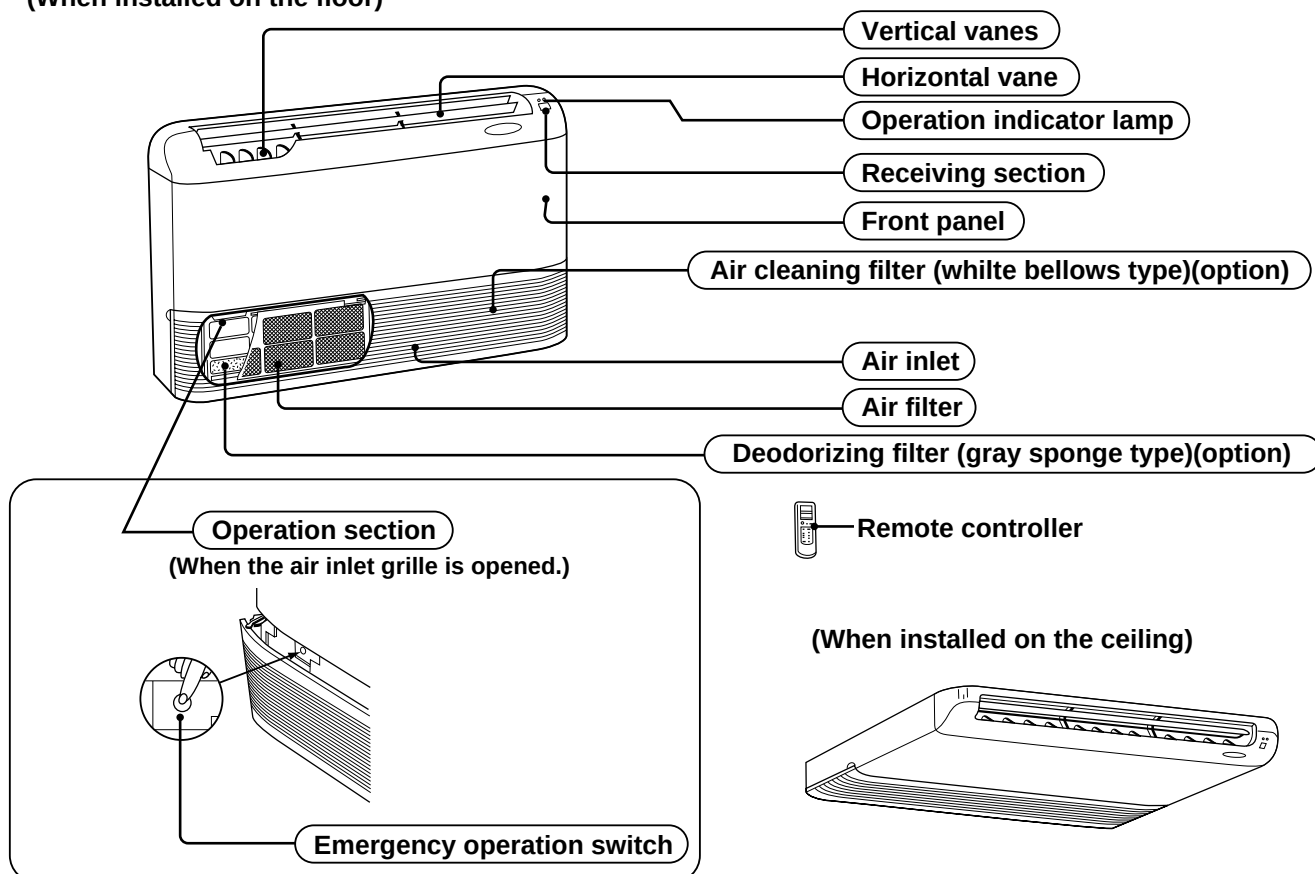
# 2

## PART NAMES AND FUNCTIONS

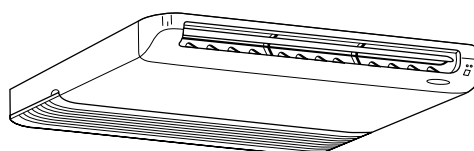
**MCF-13NV - E3**

### INDOOR UNIT

(When installed on the floor)

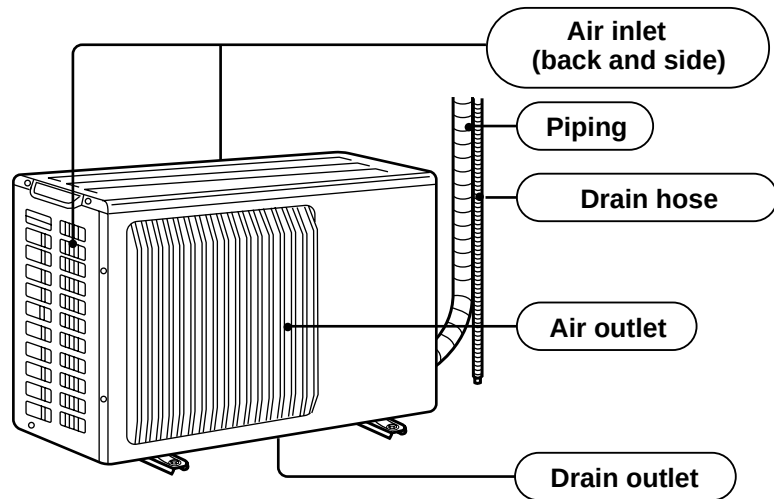


(When installed on the ceiling)



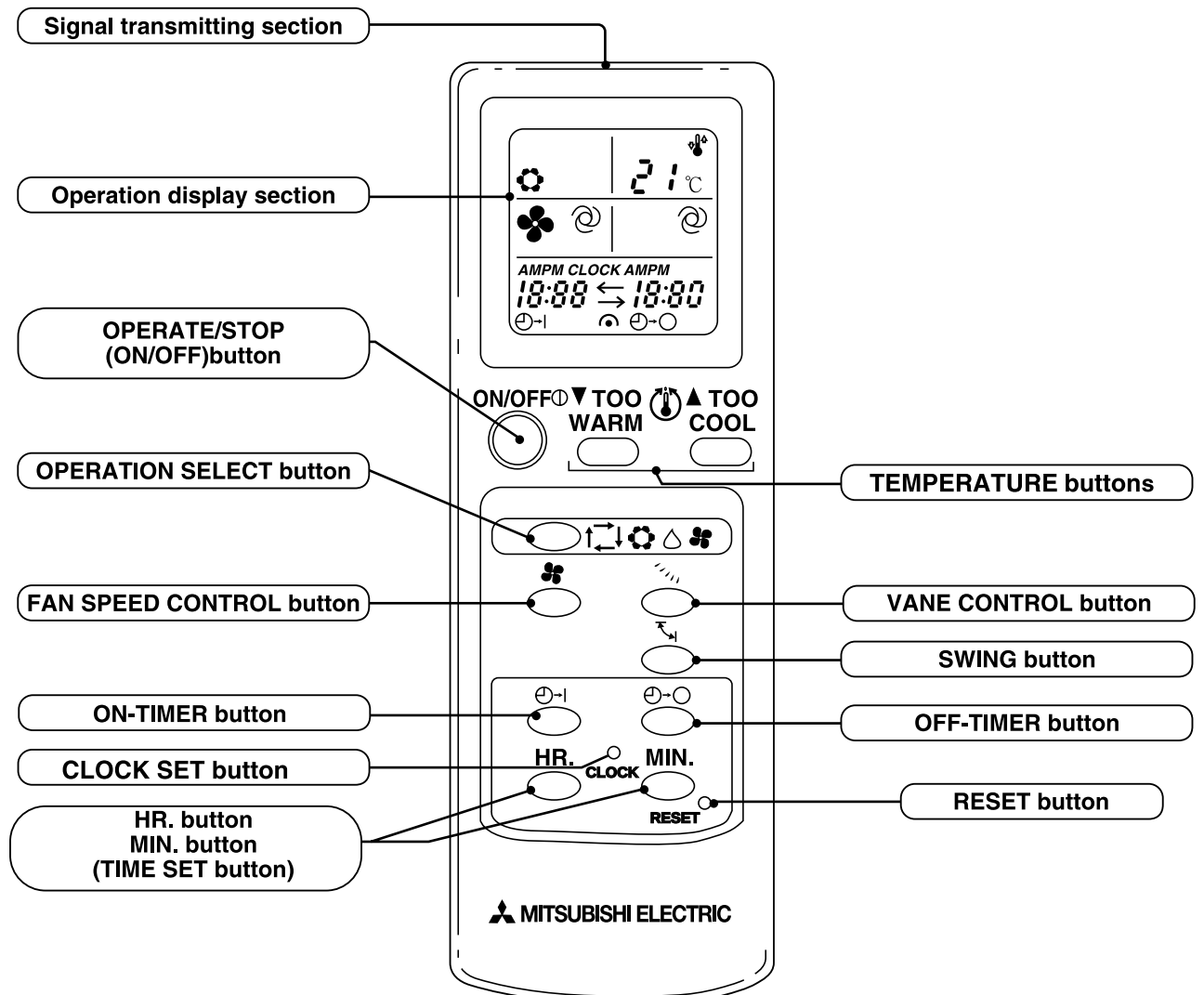
MUCF-13NV - E3

## OUTDOOR UNIT



MCF-13NV - E3

## REMOTE CONTROLLER



| Model                             |                                    |              |       | MCF-13NV- <span style="border: 1px solid black; padding: 0 2px;">E3</span> |             |  |
|-----------------------------------|------------------------------------|--------------|-------|----------------------------------------------------------------------------|-------------|--|
| Function                          |                                    |              |       | Cooling                                                                    |             |  |
| Power supply                      |                                    |              |       | Single phase, 220-240V, 50Hz                                               |             |  |
| Capacity                          | Capacity                           |              | kW    | 3.7                                                                        |             |  |
|                                   | Dehumidification                   |              | ℓ /h  | 1.6                                                                        |             |  |
|                                   | Air flow                           |              | m³/h  | 678                                                                        |             |  |
| Electrical data                   | Power outlet                       |              | A     | 10                                                                         |             |  |
|                                   | Running current                    |              | A     | 6.3-6.3                                                                    |             |  |
|                                   | Power input                        |              | W     | 1,310-1,380                                                                |             |  |
|                                   | Auxiliary heater                   |              | A(kW) | —                                                                          |             |  |
|                                   | Power factor                       |              | %     | 95-91                                                                      |             |  |
|                                   | Starting current                   |              | A     | 35-38                                                                      |             |  |
|                                   | Compressor motor current           |              | A     | 5.74-5.72                                                                  |             |  |
|                                   | Fan motor current                  |              | A     | 0.56-0.58                                                                  |             |  |
| Coefficient of performance(C.O.P) |                                    |              |       | 2.82-2.68                                                                  |             |  |
| Compressor                        | Model                              |              |       | RH-231VHAT                                                                 |             |  |
|                                   | Output                             |              | W     | 1,100                                                                      |             |  |
|                                   | Winding resistance (at 20℃)        |              | Ω     | C-R2.11 C-S3.97                                                            |             |  |
| Indoor fan motor                  | Model                              |              |       | RB4V19-AB                                                                  |             |  |
|                                   | Winding resistance (at 20℃)        |              | Ω     | WHT-BLK 203.2 BLK-YLW 45.9<br>YLW-BLU 32.7 BLU-BRN 44.4<br>BRN-RED 23.3    |             |  |
| Outdoor fan motor                 | Model                              |              |       | RA6V33-CB                                                                  |             |  |
|                                   | Winding resistance (at 20℃)        |              | Ω     | WHT-BLK 176<br>BLK-RED 413                                                 |             |  |
| Dimensions                        | Indoor unit                        | Width        | mm    | 1,100                                                                      |             |  |
|                                   |                                    | Height       | mm    | 650                                                                        |             |  |
|                                   |                                    | Depth        | mm    | 180                                                                        |             |  |
|                                   | Outdoor unit                       | Width        | mm    | 780                                                                        |             |  |
|                                   |                                    | Height       | mm    | 540                                                                        |             |  |
|                                   |                                    | Depth        | mm    | 255                                                                        |             |  |
| Weight                            | Indoor unit                        |              | kg    | 26                                                                         |             |  |
|                                   | Outdoor unit                       |              | kg    | 34                                                                         |             |  |
| Special remarks                   | Air direction                      |              |       | 5                                                                          |             |  |
|                                   | Sound level (Hi)                   | Indoor unit  | dB    | 43-44                                                                      |             |  |
|                                   |                                    | Outdoor unit | dB    | 49                                                                         |             |  |
|                                   | Fan speed (Hi)                     | Indoor unit  | rpm   | 1,080-1,130                                                                |             |  |
|                                   |                                    | Outdoor unit | rpm   | 700-750                                                                    |             |  |
|                                   | Fan speed regulator                | Indoor unit  |       | 3                                                                          |             |  |
|                                   |                                    | Outdoor unit |       | 1                                                                          |             |  |
|                                   | Refrigerant filling capacity(R-22) |              |       | kg                                                                         | 0.85        |  |
|                                   | Refrigerating machine oil <Model>  |              |       | cc                                                                         | 520 <MS-56> |  |
|                                   | Thermistor                         | RT11(at 25℃) |       | kΩ                                                                         | 10          |  |
| RT12(at 25℃)                      |                                    | kΩ           | 10    |                                                                            |             |  |

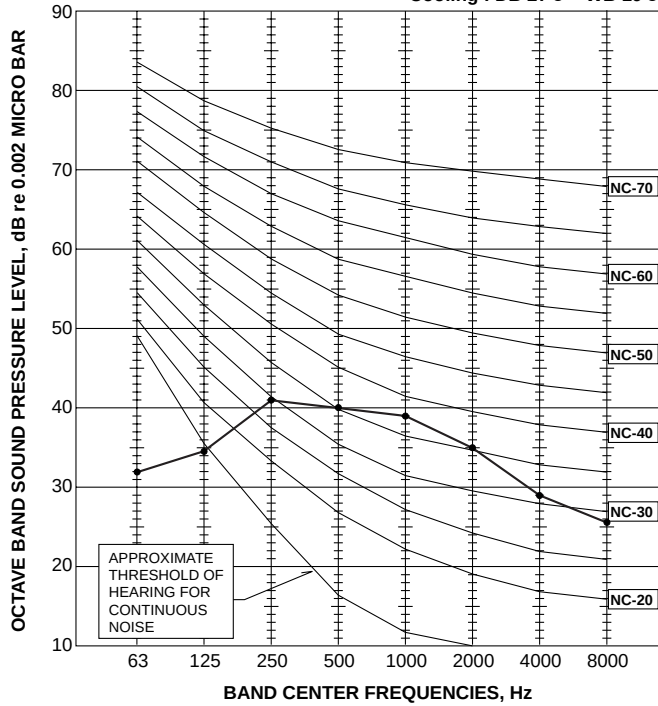
NOTE:Test conditions

Cooling : Indoor DB27°C WB19°C Outdoor DB35°C WB24°C

## MCF-13NV - E3

| NOTCH            | SPL(dB <sub>A</sub> ) | LINE  |
|------------------|-----------------------|-------|
| Hi<br>(220-240V) | 43-44                 | ● — ● |

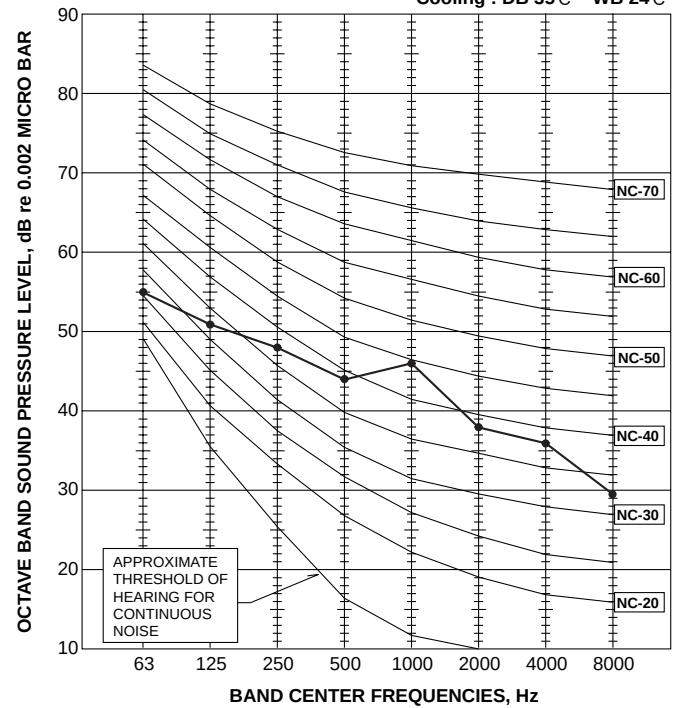
Test conditions,  
Cooling : DB 27°C WB 19°C



## MUCF-13NV - E3

| NOTCH | SPL(dB <sub>A</sub> ) | LINE  |
|-------|-----------------------|-------|
| Hi    | 49                    | ● — ● |

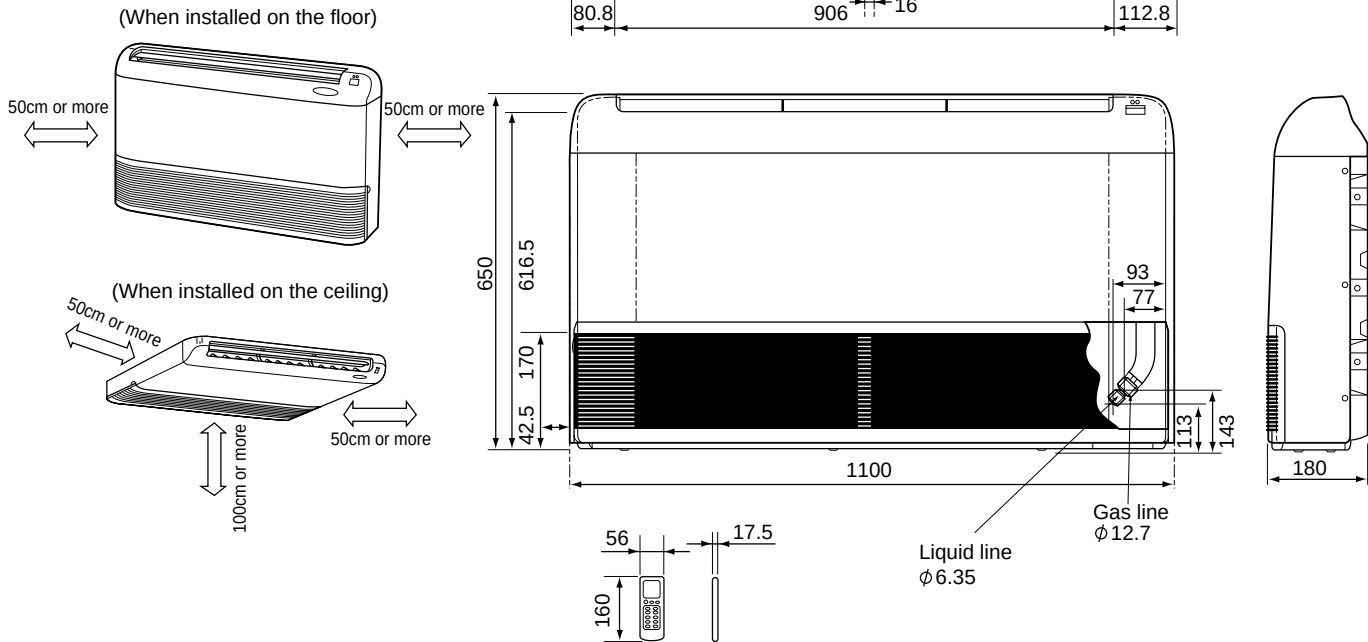
Test conditions,  
Cooling : DB 35°C WB 24°C



## MCF-13NV - E3

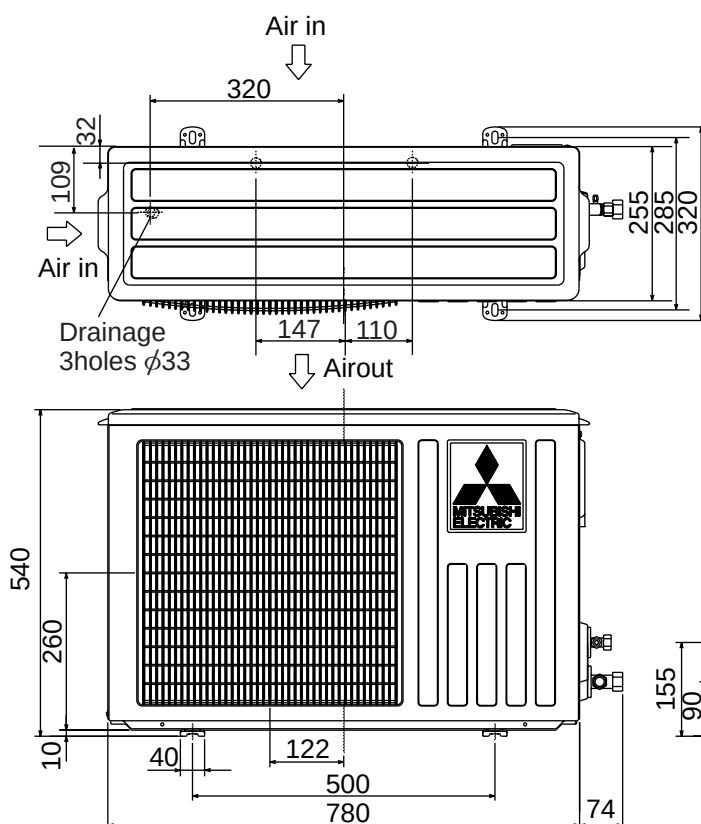
Unit: mm

## INDOOR UNIT



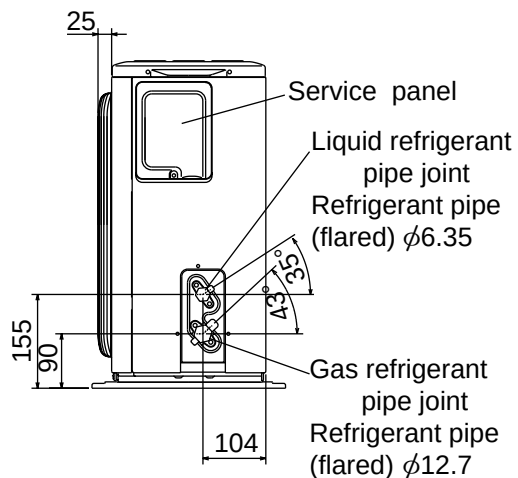
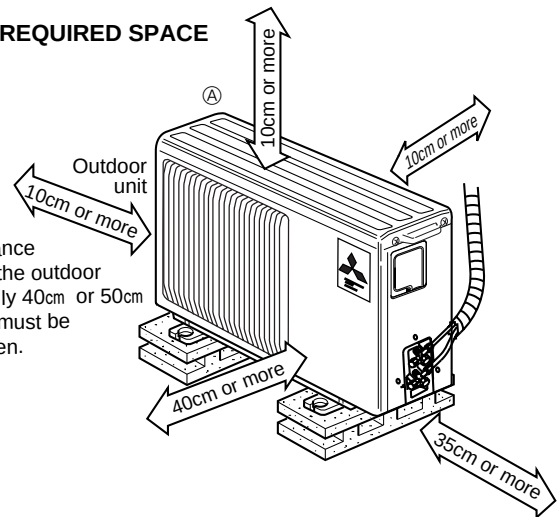
## MUCF-13NV - E3

## OUTDOOR UNIT



## REQUIRED SPACE

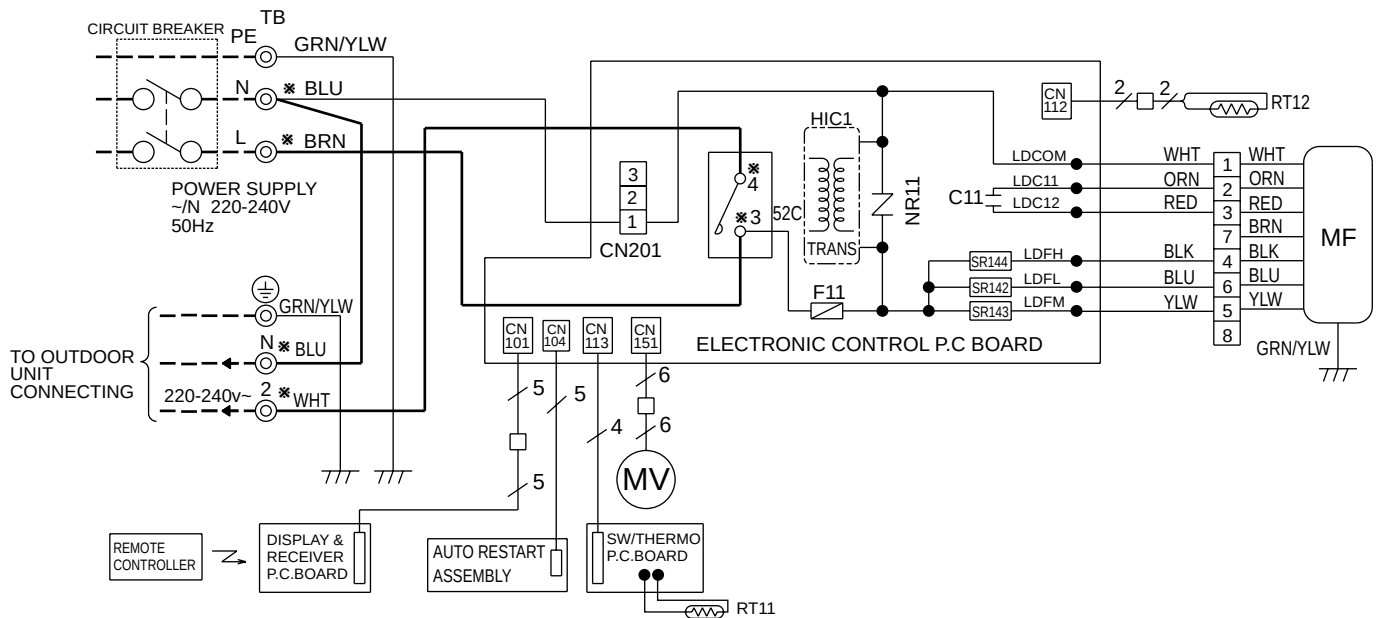
If clearance  
behind the outdoor  
units only 40cm or 50cm  
side ① must be  
fully open.



## MCF-13NV - E3

## INDOOR UNIT

## MODEL WIRING DIAGRAM

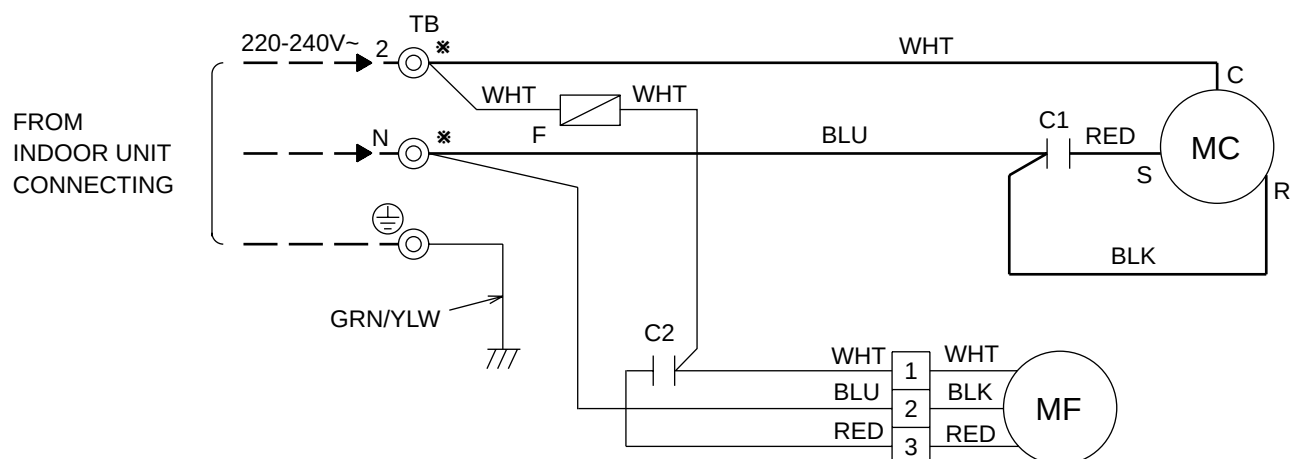


NOTE:1. For the outdoor electric wiring refer to the outdoor unit electric wiring diagram for servicing.  
 2. Use copper conductors only.(For field wiring)  
 3. Symbols below indicate.  
 ○: Terminal block, □□□□: Connector

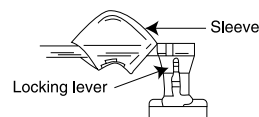
## MUCF-13NV - E3

## OUTDOOR UNIT

## MODEL WIRING DIAGRAM



NOTE : 1. Use copper conductors only (For field wiring).  
 2. "\*" shows the terminals with a lock mechanism, so they cannot be removed when you pull the lead wire. Be sure to pull the lead wire by pushing the locking lever (projected part) of the terminal with a finger.



①Slide the sleeve.  
 ②Pull the wire while pushing the locking lever.

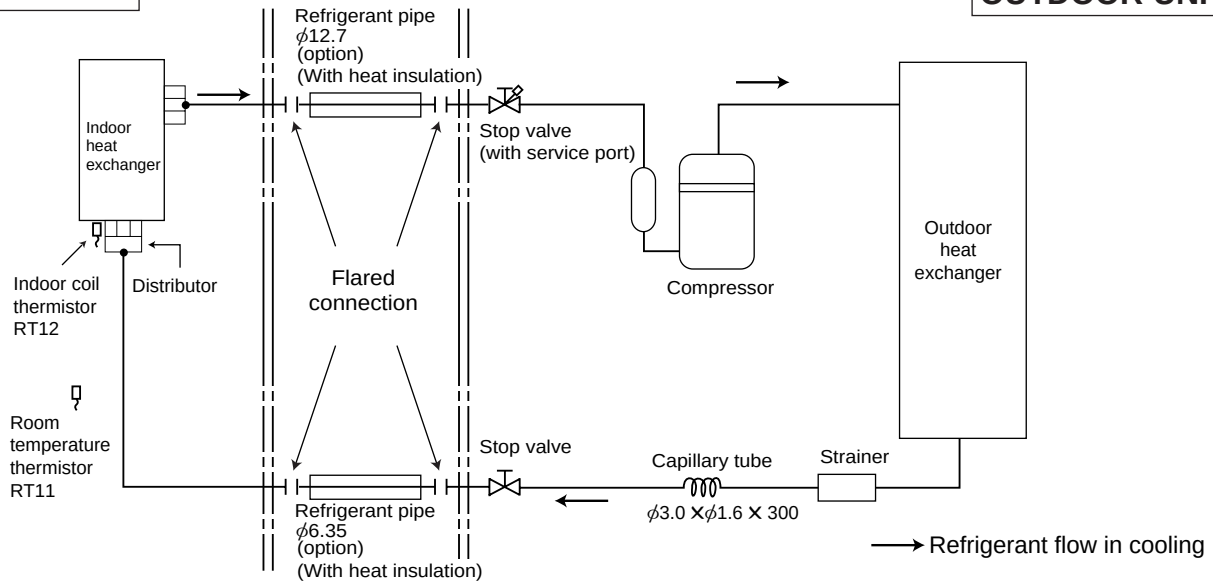
MCF-13NV - E3

Unit:mm

MUCF-13NV - E3

## INDOOR UNIT

## OUTDOOR UNIT

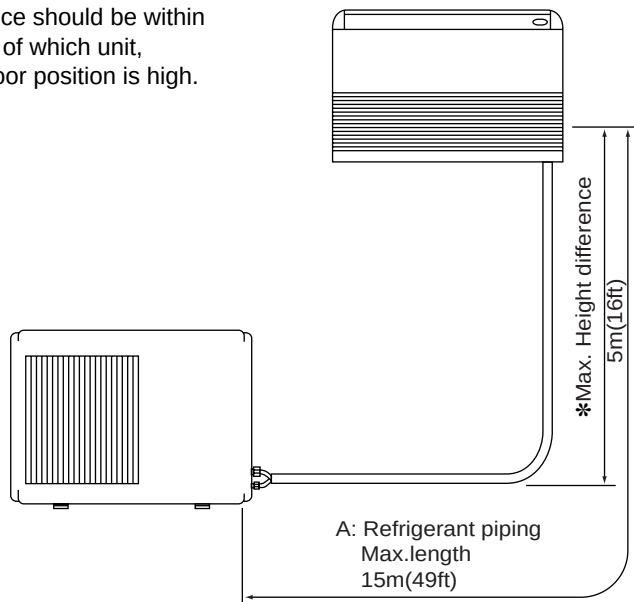


## MAX. REFRIGERANT PIPING LENGTH &amp; MAX. HEIGHT DIFFERENCE

| Model         | Length : m (ft)<br>A | Piping size O.D : mm(in.) |            |
|---------------|----------------------|---------------------------|------------|
|               |                      | Gas                       | Liquid     |
| MCF-13NV - E3 | 15(49)               | φ12.7(1/2)                | φ6.35(1/4) |

## MAX. HEIGHT DIFFERENCE

\*Height difference should be within 5m regardless of which unit, indoor or outdoor position is high.



## ADDITIONAL REFRIGERANT CHARGE (R-22 : g)

| Model         | Outdoor unit precharged | Refrigerant piping length (one way) |    |    |     |     |     |     |     |     |
|---------------|-------------------------|-------------------------------------|----|----|-----|-----|-----|-----|-----|-----|
|               |                         | 7m                                  | 8m | 9m | 10m | 11m | 12m | 13m | 14m | 15m |
| MCF-13NV - E3 | 850                     | 0                                   | 15 | 30 | 45  | 60  | 75  | 90  | 105 | 120 |

Calculation :  $X_g = 15g/m \times (A - 7)m$

**MCF-13NV - E3**

The standard data contained in these specifications apply only to the operation of the air conditioner under normal conditions. Since operating conditions vary according to the areas where these units are installed. The following information has been provided to clarify the operating characteristics of the air conditioner under the conditions indicated by the performance curve.

**(1) GUARANTEED VOLTAGE**

Rated voltage :  $\pm 10\%$  (198~264V), 50Hz

**(2) AIR FLOW**

Air flow should be set at MAX.

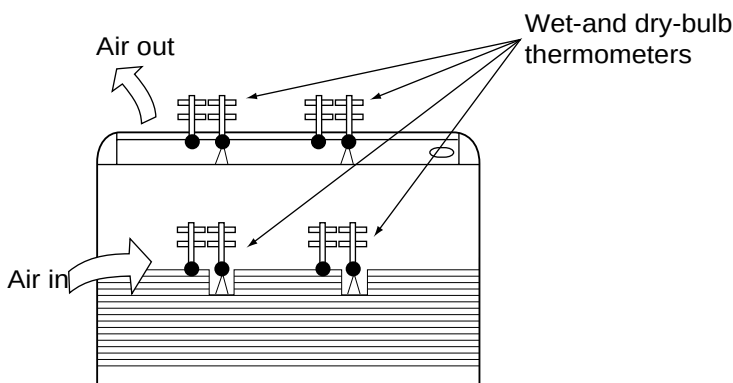
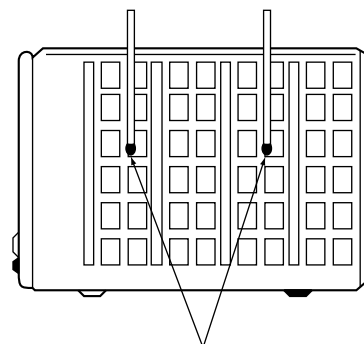
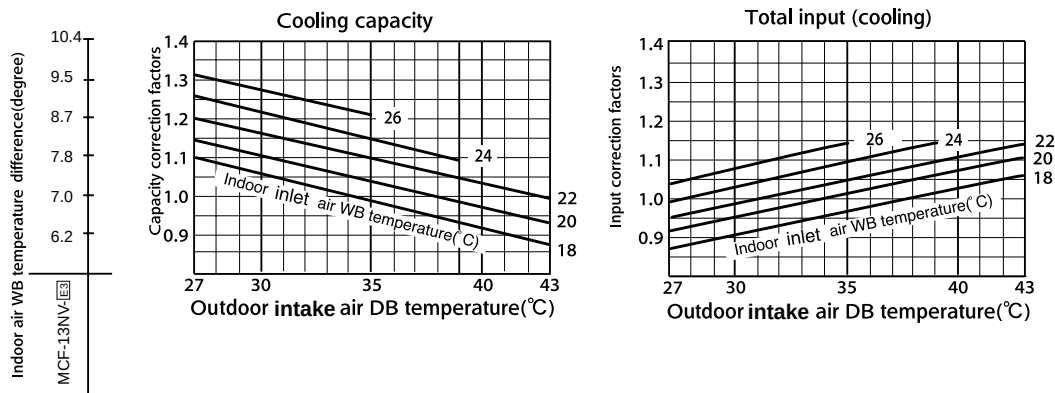
**(3) MAIN READINGS**

- (1) Indoor intake air wet-bulb temperature : °CWB
- (2) Indoor outlet air wet-bulb temperature : °CWB
- (3) Outdoor intake air dry-bulb temperature : °CDB
- (4) Total input : W

Indoor air wet-bulb temperature difference on the left side of the chart on this page shows the difference between the indoor intake air wet-bulb temperature and the indoor outlet air wet-bulb temperature for your reference at service.

**How to measure the indoor air wet-bulb temperature difference**

1. Attach at least 2 sets of wet-and dry-bulb thermometers to the indoor air intake as shown in the figure, and at least 2 sets of wet-and-dry-bulb thermometers to the indoor air outlet. The thermometers must be attached to the position where air speed is high.
2. Attach at least 2 sets of dry-bulb thermometers to the outdoor air intake.
3. Cover the thermometers to prevent direct rays of the sun.
4. Check that the air filter is cleaned.
5. Open windows and doors of the room.
6. Press the EMERGENCY OPERATION switch to start the EMERGENCY COOL MODE.
7. When system stabilizes after more than 15 minutes, measure temperature and take an average temperature.
8. 10 minutes later, measure temperature again and check that the temperature does not change.

**INDOOR UNIT****FRONT VIEW****OUTDOOR UNIT****BACK VIEW**

OUTDOOR LOW PRESSURE AND OUTDOOR UNIT CURRENT

COOL operation

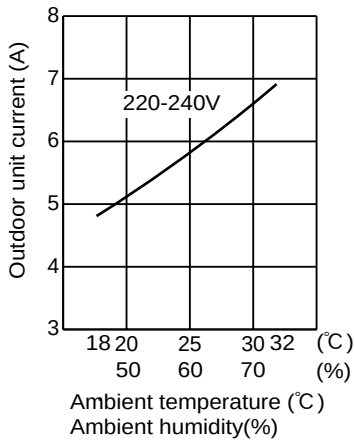
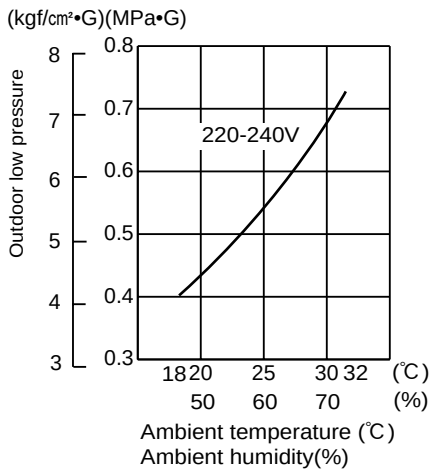
① Both indoor and outdoor units are under the same temperature/humidity condition

| Dry Bulb temperature (°C) | Relative humidity (%) |
|---------------------------|-----------------------|
| 20                        | 50                    |
| 25                        | 60                    |
| 30                        | 70                    |

② Air flow should be set at MAX.

③ The unit of pressure has been changed to MPa on the international system of units(SI unit system).  
The conversion factor is : **1(MPa • G) =10.2(kgf/cm² • G)**

MUCF-13NV - E3



# **PERFORMANCE DATA**

**COOL operation(220V)**

**MCF-13NV -E3 : MUCF-13NV -E3**

CAPACITY : 3.7 kW INPUT : 1310 W SHF : 0.70

| INDOOR<br>DB(°C) | INDOOR<br>WB(°C) | OUTDOOR DB(°C) |      |      |       |      |      |      |       |      |      |      |       |      |      |      |       |
|------------------|------------------|----------------|------|------|-------|------|------|------|-------|------|------|------|-------|------|------|------|-------|
|                  |                  | 21             |      |      |       | 25   |      |      |       | 27   |      |      |       | 30   |      |      |       |
|                  |                  | Q              | SHC  | SHF  | INPUT | Q    | SHC  | SHF  | INPUT | Q    | SHC  | SHF  | INPUT | Q    | SHC  | SHF  | INPUT |
| 21               | 18               | 4.35           | 2.26 | 0.52 | 1048  | 4.16 | 2.16 | 0.52 | 1100  | 4.00 | 2.08 | 0.52 | 1153  | 3.85 | 2.00 | 0.52 | 1205  |
| 21               | 20               | 4.53           | 1.81 | 0.40 | 1100  | 4.35 | 1.74 | 0.40 | 1166  | 4.22 | 1.69 | 0.40 | 1192  | 4.07 | 1.63 | 0.40 | 1245  |
| 22               | 18               | 4.35           | 2.43 | 0.56 | 1048  | 4.16 | 2.33 | 0.56 | 1100  | 4.00 | 2.24 | 0.56 | 1153  | 3.85 | 2.15 | 0.56 | 1205  |
| 22               | 20               | 4.53           | 1.99 | 0.44 | 1100  | 4.35 | 1.91 | 0.44 | 1166  | 4.22 | 1.86 | 0.44 | 1192  | 4.07 | 1.79 | 0.44 | 1245  |
| 22               | 22               | 4.72           | 1.51 | 0.32 | 1140  | 4.55 | 1.46 | 0.32 | 1212  | 4.44 | 1.42 | 0.32 | 1245  | 4.26 | 1.36 | 0.32 | 1297  |
| 23               | 18               | 4.35           | 2.61 | 0.60 | 1048  | 4.16 | 2.50 | 0.60 | 1100  | 4.00 | 2.40 | 0.60 | 1153  | 3.85 | 2.31 | 0.60 | 1205  |
| 23               | 20               | 4.53           | 2.18 | 0.48 | 1100  | 4.35 | 2.09 | 0.48 | 1166  | 4.22 | 2.02 | 0.48 | 1192  | 4.07 | 1.95 | 0.48 | 1245  |
| 23               | 22               | 4.72           | 1.70 | 0.36 | 1140  | 4.55 | 1.64 | 0.36 | 1212  | 4.44 | 1.60 | 0.36 | 1245  | 4.26 | 1.53 | 0.36 | 1297  |
| 24               | 18               | 4.35           | 2.78 | 0.64 | 1048  | 4.16 | 2.66 | 0.64 | 1100  | 4.00 | 2.56 | 0.64 | 1153  | 3.85 | 2.46 | 0.64 | 1205  |
| 24               | 20               | 4.53           | 2.36 | 0.52 | 1100  | 4.35 | 2.26 | 0.52 | 1166  | 4.22 | 2.19 | 0.52 | 1192  | 4.07 | 2.12 | 0.52 | 1245  |
| 24               | 22               | 4.72           | 1.89 | 0.40 | 1140  | 4.55 | 1.82 | 0.40 | 1212  | 4.44 | 1.78 | 0.40 | 1245  | 4.26 | 1.70 | 0.40 | 1297  |
| 24               | 24               | 4.96           | 1.39 | 0.28 | 1192  | 4.77 | 1.34 | 0.28 | 1258  | 4.66 | 1.31 | 0.28 | 1297  | 4.51 | 1.26 | 0.28 | 1362  |
| 25               | 18               | 4.35           | 2.96 | 0.68 | 1048  | 4.16 | 2.83 | 0.68 | 1100  | 4.00 | 2.72 | 0.68 | 1153  | 3.85 | 2.62 | 0.68 | 1205  |
| 25               | 20               | 4.53           | 2.54 | 0.56 | 1100  | 4.35 | 2.43 | 0.56 | 1166  | 4.22 | 2.36 | 0.56 | 1192  | 4.07 | 2.28 | 0.56 | 1245  |
| 25               | 22               | 4.72           | 2.08 | 0.44 | 1140  | 4.55 | 2.00 | 0.44 | 1212  | 4.44 | 1.95 | 0.44 | 1245  | 4.26 | 1.87 | 0.44 | 1297  |
| 25               | 24               | 4.96           | 1.59 | 0.32 | 1192  | 4.77 | 1.53 | 0.32 | 1258  | 4.66 | 1.49 | 0.32 | 1297  | 4.51 | 1.44 | 0.32 | 1362  |
| 26               | 18               | 4.35           | 3.13 | 0.72 | 1048  | 4.16 | 3.00 | 0.72 | 1100  | 4.00 | 2.88 | 0.72 | 1153  | 3.85 | 2.77 | 0.72 | 1205  |
| 26               | 20               | 4.53           | 2.72 | 0.60 | 1100  | 4.35 | 2.61 | 0.60 | 1166  | 4.22 | 2.53 | 0.60 | 1192  | 4.07 | 2.44 | 0.60 | 1245  |
| 26               | 22               | 4.72           | 2.26 | 0.48 | 1140  | 4.55 | 2.18 | 0.48 | 1212  | 4.44 | 2.13 | 0.48 | 1245  | 4.26 | 2.04 | 0.48 | 1297  |
| 26               | 24               | 4.96           | 1.78 | 0.36 | 1192  | 4.77 | 1.72 | 0.36 | 1258  | 4.66 | 1.68 | 0.36 | 1297  | 4.51 | 1.63 | 0.36 | 1362  |
| 26               | 26               | 5.11           | 1.23 | 0.24 | 1258  | 4.96 | 1.19 | 0.24 | 1323  | 4.88 | 1.17 | 0.24 | 1362  | 4.74 | 1.14 | 0.24 | 1402  |
| 27               | 18               | 4.35           | 3.30 | 0.76 | 1048  | 4.16 | 3.16 | 0.76 | 1100  | 4.00 | 3.04 | 0.76 | 1153  | 3.85 | 2.92 | 0.76 | 1205  |
| 27               | 20               | 4.53           | 2.90 | 0.64 | 1100  | 4.35 | 2.78 | 0.64 | 1166  | 4.22 | 2.70 | 0.64 | 1192  | 4.07 | 2.60 | 0.64 | 1245  |
| 27               | 22               | 4.72           | 2.45 | 0.52 | 1140  | 4.55 | 2.37 | 0.52 | 1212  | 4.44 | 2.31 | 0.52 | 1245  | 4.26 | 2.21 | 0.52 | 1297  |
| 27               | 24               | 4.96           | 1.98 | 0.40 | 1192  | 4.77 | 1.91 | 0.40 | 1258  | 4.66 | 1.86 | 0.40 | 1297  | 4.51 | 1.81 | 0.40 | 1362  |
| 27               | 26               | 5.11           | 1.43 | 0.28 | 1258  | 4.96 | 1.39 | 0.28 | 1323  | 4.88 | 1.37 | 0.28 | 1362  | 4.74 | 1.33 | 0.28 | 1402  |
| 28               | 18               | 4.35           | 3.48 | 0.80 | 1048  | 4.16 | 3.33 | 0.80 | 1100  | 4.00 | 3.20 | 0.80 | 1153  | 3.85 | 3.08 | 0.80 | 1205  |
| 28               | 20               | 4.53           | 3.08 | 0.68 | 1100  | 4.35 | 2.96 | 0.68 | 1166  | 4.22 | 2.87 | 0.68 | 1192  | 4.07 | 2.77 | 0.68 | 1245  |
| 28               | 22               | 4.72           | 2.64 | 0.56 | 1140  | 4.55 | 2.55 | 0.56 | 1212  | 4.44 | 2.49 | 0.56 | 1245  | 4.26 | 2.38 | 0.56 | 1297  |
| 28               | 24               | 4.96           | 2.18 | 0.44 | 1192  | 4.77 | 2.10 | 0.44 | 1258  | 4.66 | 2.05 | 0.44 | 1297  | 4.51 | 1.99 | 0.44 | 1362  |
| 28               | 26               | 5.11           | 1.63 | 0.32 | 1258  | 4.96 | 1.59 | 0.32 | 1323  | 4.88 | 1.56 | 0.32 | 1362  | 4.74 | 1.52 | 0.32 | 1402  |
| 29               | 18               | 4.35           | 3.65 | 0.84 | 1048  | 4.16 | 3.50 | 0.84 | 1100  | 4.00 | 3.36 | 0.84 | 1153  | 3.85 | 3.23 | 0.84 | 1205  |
| 29               | 20               | 4.53           | 3.26 | 0.72 | 1100  | 4.35 | 3.13 | 0.72 | 1166  | 4.22 | 3.04 | 0.72 | 1192  | 4.07 | 2.93 | 0.72 | 1245  |
| 29               | 22               | 4.72           | 2.83 | 0.60 | 1140  | 4.55 | 2.73 | 0.60 | 1212  | 4.44 | 2.66 | 0.60 | 1245  | 4.26 | 2.55 | 0.60 | 1297  |
| 29               | 24               | 4.96           | 2.38 | 0.48 | 1192  | 4.77 | 2.29 | 0.48 | 1258  | 4.66 | 2.24 | 0.48 | 1297  | 4.51 | 2.17 | 0.48 | 1362  |
| 29               | 26               | 5.11           | 1.84 | 0.36 | 1258  | 4.96 | 1.78 | 0.36 | 1323  | 4.88 | 1.76 | 0.36 | 1362  | 4.74 | 1.70 | 0.36 | 1402  |
| 30               | 18               | 4.35           | 3.83 | 0.88 | 1048  | 4.16 | 3.66 | 0.88 | 1100  | 4.00 | 3.52 | 0.88 | 1153  | 3.85 | 3.39 | 0.88 | 1205  |
| 30               | 20               | 4.53           | 3.44 | 0.76 | 1100  | 4.35 | 3.30 | 0.76 | 1166  | 4.22 | 3.21 | 0.76 | 1192  | 4.07 | 3.09 | 0.76 | 1245  |
| 30               | 22               | 4.72           | 3.02 | 0.64 | 1140  | 4.55 | 2.91 | 0.64 | 1212  | 4.44 | 2.84 | 0.64 | 1245  | 4.26 | 2.72 | 0.64 | 1297  |
| 30               | 24               | 4.96           | 2.58 | 0.52 | 1192  | 4.77 | 2.48 | 0.52 | 1258  | 4.66 | 2.42 | 0.52 | 1297  | 4.51 | 2.35 | 0.52 | 1362  |
| 30               | 26               | 5.11           | 2.04 | 0.40 | 1258  | 4.96 | 1.98 | 0.40 | 1323  | 4.88 | 1.95 | 0.40 | 1362  | 4.74 | 1.89 | 0.40 | 1402  |
| 31               | 18               | 4.35           | 4.00 | 0.92 | 1048  | 4.16 | 3.83 | 0.92 | 1100  | 4.00 | 3.68 | 0.92 | 1153  | 3.85 | 3.54 | 0.92 | 1205  |
| 31               | 20               | 4.53           | 3.63 | 0.80 | 1100  | 4.35 | 3.48 | 0.80 | 1166  | 4.22 | 3.37 | 0.80 | 1192  | 4.07 | 3.26 | 0.80 | 1245  |
| 31               | 22               | 4.72           | 3.21 | 0.68 | 1140  | 4.55 | 3.09 | 0.68 | 1212  | 4.44 | 3.02 | 0.68 | 1245  | 4.26 | 2.89 | 0.68 | 1297  |
| 31               | 24               | 4.96           | 2.78 | 0.56 | 1192  | 4.77 | 2.67 | 0.56 | 1258  | 4.66 | 2.61 | 0.56 | 1297  | 4.51 | 2.53 | 0.56 | 1362  |
| 31               | 26               | 5.11           | 2.25 | 0.44 | 1258  | 4.96 | 2.18 | 0.44 | 1323  | 4.88 | 2.15 | 0.44 | 1362  | 4.74 | 2.08 | 0.44 | 1402  |
| 32               | 18               | 4.35           | 4.17 | 0.96 | 1048  | 4.16 | 4.00 | 0.96 | 1100  | 4.00 | 3.84 | 0.96 | 1153  | 3.85 | 3.69 | 0.96 | 1205  |
| 32               | 20               | 4.53           | 3.81 | 0.84 | 1100  | 4.35 | 3.65 | 0.84 | 1166  | 4.22 | 3.54 | 0.84 | 1192  | 4.07 | 3.42 | 0.84 | 1245  |
| 32               | 22               | 4.72           | 3.40 | 0.72 | 1140  | 4.55 | 3.28 | 0.72 | 1212  | 4.44 | 3.20 | 0.72 | 1245  | 4.26 | 3.06 | 0.72 | 1297  |
| 32               | 24               | 4.96           | 2.97 | 0.60 | 1192  | 4.77 | 2.86 | 0.60 | 1258  | 4.66 | 2.80 | 0.60 | 1297  | 4.51 | 2.71 | 0.60 | 1362  |
| 32               | 26               | 5.11           | 2.45 | 0.48 | 1258  | 4.96 | 2.38 | 0.48 | 1323  | 4.88 | 2.34 | 0.48 | 1362  | 4.74 | 2.27 | 0.48 | 1402  |

**NOTE** Q : Total capacity (kW) SHF : Sensible heat factor  
SHC : Sensible heat capacity (kW) INPUT : Total power input (W)

# **PERFORMANCE DATA**

**COOL operation(220V)**

**MCF-13NV -E3 : MUCF-13NV -E3**

CAPACITY : 3.7 kW INPUT : 1310 W SHF : 0.70

|                  |                  | OUTDOOR DB(°C) |      |      |       |      |      |      |       |      |      |      |       |
|------------------|------------------|----------------|------|------|-------|------|------|------|-------|------|------|------|-------|
| INDOOR<br>DB(°C) | INDOOR<br>WB(°C) | 35             |      |      |       | 40   |      |      |       | 43   |      |      |       |
|                  |                  | Q              | SHC  | SHF  | INPUT | Q    | SHC  | SHF  | INPUT | Q    | SHC  | SHF  | INPUT |
| 21               | 18               | 3.63           | 1.89 | 0.52 | 1284  | 3.33 | 1.73 | 0.52 | 1362  | 3.20 | 1.66 | 0.52 | 1389  |
| 21               | 20               | 3.81           | 1.52 | 0.40 | 1336  | 3.55 | 1.42 | 0.40 | 1402  | 3.42 | 1.37 | 0.40 | 1441  |
| 22               | 18               | 3.63           | 2.03 | 0.56 | 1284  | 3.33 | 1.86 | 0.56 | 1362  | 3.20 | 1.79 | 0.56 | 1389  |
| 22               | 20               | 3.81           | 1.68 | 0.44 | 1336  | 3.55 | 1.56 | 0.44 | 1402  | 3.42 | 1.51 | 0.44 | 1441  |
| 22               | 22               | 4.03           | 1.29 | 0.32 | 1389  | 3.77 | 1.21 | 0.32 | 1467  | 3.64 | 1.17 | 0.32 | 1493  |
| 23               | 18               | 3.63           | 2.18 | 0.60 | 1284  | 3.33 | 2.00 | 0.60 | 1362  | 3.20 | 1.92 | 0.60 | 1389  |
| 23               | 20               | 3.81           | 1.83 | 0.48 | 1336  | 3.55 | 1.70 | 0.48 | 1402  | 3.42 | 1.64 | 0.48 | 1441  |
| 23               | 22               | 4.03           | 1.45 | 0.36 | 1389  | 3.77 | 1.36 | 0.36 | 1467  | 3.64 | 1.31 | 0.36 | 1493  |
| 24               | 18               | 3.63           | 2.32 | 0.64 | 1284  | 3.33 | 2.13 | 0.64 | 1362  | 3.20 | 2.05 | 0.64 | 1389  |
| 24               | 20               | 3.81           | 1.98 | 0.52 | 1336  | 3.55 | 1.85 | 0.52 | 1402  | 3.42 | 1.78 | 0.52 | 1441  |
| 24               | 22               | 4.03           | 1.61 | 0.40 | 1389  | 3.77 | 1.51 | 0.40 | 1467  | 3.64 | 1.46 | 0.40 | 1493  |
| 24               | 24               | 4.26           | 1.19 | 0.28 | 1441  | 4.00 | 1.12 | 0.28 | 1507  | 3.89 | 1.09 | 0.28 | 1539  |
| 25               | 18               | 3.63           | 2.47 | 0.68 | 1284  | 3.33 | 2.26 | 0.68 | 1362  | 3.20 | 2.18 | 0.68 | 1389  |
| 25               | 20               | 3.81           | 2.13 | 0.56 | 1336  | 3.55 | 1.99 | 0.56 | 1402  | 3.42 | 1.92 | 0.56 | 1441  |
| 25               | 22               | 4.03           | 1.77 | 0.44 | 1389  | 3.77 | 1.66 | 0.44 | 1467  | 3.64 | 1.60 | 0.44 | 1493  |
| 25               | 24               | 4.26           | 1.36 | 0.32 | 1441  | 4.00 | 1.28 | 0.32 | 1507  | 3.89 | 1.24 | 0.32 | 1539  |
| 26               | 18               | 3.63           | 2.61 | 0.72 | 1284  | 3.33 | 2.40 | 0.72 | 1362  | 3.20 | 2.30 | 0.72 | 1389  |
| 26               | 20               | 3.81           | 2.29 | 0.60 | 1336  | 3.55 | 2.13 | 0.60 | 1402  | 3.42 | 2.05 | 0.60 | 1441  |
| 26               | 22               | 4.03           | 1.94 | 0.48 | 1389  | 3.77 | 1.81 | 0.48 | 1467  | 3.64 | 1.75 | 0.48 | 1493  |
| 26               | 24               | 4.26           | 1.53 | 0.36 | 1441  | 4.00 | 1.44 | 0.36 | 1507  | 3.89 | 1.40 | 0.36 | 1539  |
| 26               | 26               | 4.48           | 1.07 | 0.24 | 1493  | 4.22 | 1.01 | 0.24 | 1559  | 4.09 | 0.98 | 0.24 | 1592  |
| 27               | 18               | 3.63           | 2.76 | 0.76 | 1284  | 3.33 | 2.53 | 0.76 | 1362  | 3.20 | 2.43 | 0.76 | 1389  |
| 27               | 20               | 3.81           | 2.44 | 0.64 | 1336  | 3.55 | 2.27 | 0.64 | 1402  | 3.42 | 2.19 | 0.64 | 1441  |
| 27               | 22               | 4.03           | 2.10 | 0.52 | 1389  | 3.77 | 1.96 | 0.52 | 1467  | 3.64 | 1.90 | 0.52 | 1493  |
| 27               | 24               | 4.26           | 1.70 | 0.40 | 1441  | 4.00 | 1.60 | 0.40 | 1507  | 3.89 | 1.55 | 0.40 | 1539  |
| 27               | 26               | 4.48           | 1.25 | 0.28 | 1493  | 4.22 | 1.18 | 0.28 | 1559  | 4.09 | 1.14 | 0.28 | 1592  |
| 28               | 18               | 3.63           | 2.90 | 0.80 | 1284  | 3.33 | 2.66 | 0.80 | 1362  | 3.20 | 2.56 | 0.80 | 1389  |
| 28               | 20               | 3.81           | 2.59 | 0.68 | 1336  | 3.55 | 2.42 | 0.68 | 1402  | 3.42 | 2.33 | 0.68 | 1441  |
| 28               | 22               | 4.03           | 2.26 | 0.56 | 1389  | 3.77 | 2.11 | 0.56 | 1467  | 3.64 | 2.04 | 0.56 | 1493  |
| 28               | 24               | 4.26           | 1.87 | 0.44 | 1441  | 4.00 | 1.76 | 0.44 | 1507  | 3.89 | 1.71 | 0.44 | 1539  |
| 28               | 26               | 4.48           | 1.43 | 0.32 | 1493  | 4.22 | 1.35 | 0.32 | 1559  | 4.09 | 1.31 | 0.32 | 1592  |
| 29               | 18               | 3.63           | 3.05 | 0.84 | 1284  | 3.33 | 2.80 | 0.84 | 1362  | 3.20 | 2.69 | 0.84 | 1389  |
| 29               | 20               | 3.81           | 2.74 | 0.72 | 1336  | 3.55 | 2.56 | 0.72 | 1402  | 3.42 | 2.46 | 0.72 | 1441  |
| 29               | 22               | 4.03           | 2.42 | 0.60 | 1389  | 3.77 | 2.26 | 0.60 | 1467  | 3.64 | 2.19 | 0.60 | 1493  |
| 29               | 24               | 4.26           | 2.04 | 0.48 | 1441  | 4.00 | 1.92 | 0.48 | 1507  | 3.89 | 1.86 | 0.48 | 1539  |
| 29               | 26               | 4.48           | 1.61 | 0.36 | 1493  | 4.22 | 1.52 | 0.36 | 1559  | 4.09 | 1.47 | 0.36 | 1592  |
| 30               | 18               | 3.63           | 3.19 | 0.88 | 1284  | 3.33 | 2.93 | 0.88 | 1362  | 3.20 | 2.82 | 0.88 | 1389  |
| 30               | 20               | 3.81           | 2.90 | 0.76 | 1336  | 3.55 | 2.70 | 0.76 | 1402  | 3.42 | 2.60 | 0.76 | 1441  |
| 30               | 22               | 4.03           | 2.58 | 0.64 | 1389  | 3.77 | 2.42 | 0.64 | 1467  | 3.64 | 2.33 | 0.64 | 1493  |
| 30               | 24               | 4.26           | 2.21 | 0.52 | 1441  | 4.00 | 2.08 | 0.52 | 1507  | 3.89 | 2.02 | 0.52 | 1539  |
| 30               | 26               | 4.48           | 1.79 | 0.40 | 1493  | 4.22 | 1.69 | 0.40 | 1559  | 4.09 | 1.64 | 0.40 | 1592  |
| 31               | 18               | 3.63           | 3.34 | 0.92 | 1284  | 3.33 | 3.06 | 0.92 | 1362  | 3.20 | 2.94 | 0.92 | 1389  |
| 31               | 20               | 3.81           | 3.05 | 0.80 | 1336  | 3.55 | 2.84 | 0.80 | 1402  | 3.42 | 2.74 | 0.80 | 1441  |
| 31               | 22               | 4.03           | 2.74 | 0.68 | 1389  | 3.77 | 2.57 | 0.68 | 1467  | 3.64 | 2.48 | 0.68 | 1493  |
| 31               | 24               | 4.26           | 2.38 | 0.56 | 1441  | 4.00 | 2.24 | 0.56 | 1507  | 3.89 | 2.18 | 0.56 | 1539  |
| 31               | 26               | 4.48           | 1.97 | 0.44 | 1493  | 4.22 | 1.86 | 0.44 | 1559  | 4.09 | 1.80 | 0.44 | 1592  |
| 32               | 18               | 3.63           | 3.48 | 0.96 | 1284  | 3.33 | 3.20 | 0.96 | 1362  | 3.20 | 3.07 | 0.96 | 1389  |
| 32               | 20               | 3.81           | 3.20 | 0.84 | 1336  | 3.55 | 2.98 | 0.84 | 1402  | 3.42 | 2.87 | 0.84 | 1441  |
| 32               | 22               | 4.03           | 2.90 | 0.72 | 1389  | 3.77 | 2.72 | 0.72 | 1467  | 3.64 | 2.62 | 0.72 | 1493  |
| 32               | 24               | 4.26           | 2.55 | 0.60 | 1441  | 4.00 | 2.40 | 0.60 | 1507  | 3.89 | 2.33 | 0.60 | 1539  |
| 32               | 26               | 4.48           | 2.15 | 0.48 | 1493  | 4.22 | 2.02 | 0.48 | 1559  | 4.09 | 1.96 | 0.48 | 1592  |

**NOTE** Q : Total capacity (kW) SHF : Sensible heat factor  
SHC : Sensible heat capacity (kW) INPUT : Total power input (W)

**PERFORMANCE DATA****COOL operation(240V)****MCF-13NV -E3 : MUCF-13NV -E3**

CAPACITY : 3.7 kW INPUT : 1380 W SHF : 0.70

|                  |                  | OUTDOOR DB(°C) |      |      |       |      |      |      |       |      |      |      |       |      |      |      |       |
|------------------|------------------|----------------|------|------|-------|------|------|------|-------|------|------|------|-------|------|------|------|-------|
| INDOOR<br>DB(°C) | INDOOR<br>WB(°C) | 21             |      |      |       | 25   |      |      |       | 27   |      |      |       | 30   |      |      |       |
|                  |                  | Q              | SHC  | SHF  | INPUT | Q    | SHC  | SHF  | INPUT | Q    | SHC  | SHF  | INPUT | Q    | SHC  | SHF  | INPUT |
| 21               | 18               | 4.35           | 2.26 | 0.52 | 1104  | 4.16 | 2.16 | 0.52 | 1159  | 4.00 | 2.08 | 0.52 | 1214  | 3.85 | 2.00 | 0.52 | 1270  |
| 21               | 20               | 4.53           | 1.81 | 0.40 | 1159  | 4.35 | 1.74 | 0.40 | 1228  | 4.22 | 1.69 | 0.40 | 1256  | 4.07 | 1.63 | 0.40 | 1311  |
| 22               | 18               | 4.35           | 2.43 | 0.56 | 1104  | 4.16 | 2.33 | 0.56 | 1159  | 4.00 | 2.24 | 0.56 | 1214  | 3.85 | 2.15 | 0.56 | 1270  |
| 22               | 20               | 4.53           | 1.99 | 0.44 | 1159  | 4.35 | 1.91 | 0.44 | 1228  | 4.22 | 1.86 | 0.44 | 1256  | 4.07 | 1.79 | 0.44 | 1311  |
| 22               | 22               | 4.72           | 1.51 | 0.32 | 1201  | 4.55 | 1.46 | 0.32 | 1277  | 4.44 | 1.42 | 0.32 | 1311  | 4.26 | 1.36 | 0.32 | 1366  |
| 23               | 18               | 4.35           | 2.61 | 0.60 | 1104  | 4.16 | 2.50 | 0.60 | 1159  | 4.00 | 2.40 | 0.60 | 1214  | 3.85 | 2.31 | 0.60 | 1270  |
| 23               | 20               | 4.53           | 2.18 | 0.48 | 1159  | 4.35 | 2.09 | 0.48 | 1228  | 4.22 | 2.02 | 0.48 | 1256  | 4.07 | 1.95 | 0.48 | 1311  |
| 23               | 22               | 4.72           | 1.70 | 0.36 | 1201  | 4.55 | 1.64 | 0.36 | 1277  | 4.44 | 1.60 | 0.36 | 1311  | 4.26 | 1.53 | 0.36 | 1366  |
| 24               | 18               | 4.35           | 2.78 | 0.64 | 1104  | 4.16 | 2.66 | 0.64 | 1159  | 4.00 | 2.56 | 0.64 | 1214  | 3.85 | 2.46 | 0.64 | 1270  |
| 24               | 20               | 4.53           | 2.36 | 0.52 | 1159  | 4.35 | 2.26 | 0.52 | 1228  | 4.22 | 2.19 | 0.52 | 1256  | 4.07 | 2.12 | 0.52 | 1311  |
| 24               | 22               | 4.72           | 1.89 | 0.40 | 1201  | 4.55 | 1.82 | 0.40 | 1277  | 4.44 | 1.78 | 0.40 | 1311  | 4.26 | 1.70 | 0.40 | 1366  |
| 24               | 24               | 4.96           | 1.39 | 0.28 | 1256  | 4.77 | 1.34 | 0.28 | 1325  | 4.66 | 1.31 | 0.28 | 1366  | 4.51 | 1.26 | 0.28 | 1435  |
| 25               | 18               | 4.35           | 2.96 | 0.68 | 1104  | 4.16 | 2.83 | 0.68 | 1159  | 4.00 | 2.72 | 0.68 | 1214  | 3.85 | 2.62 | 0.68 | 1270  |
| 25               | 20               | 4.53           | 2.54 | 0.56 | 1159  | 4.35 | 2.43 | 0.56 | 1228  | 4.22 | 2.36 | 0.56 | 1256  | 4.07 | 2.28 | 0.56 | 1311  |
| 25               | 22               | 4.72           | 2.08 | 0.44 | 1201  | 4.55 | 2.00 | 0.44 | 1277  | 4.44 | 1.95 | 0.44 | 1311  | 4.26 | 1.87 | 0.44 | 1366  |
| 25               | 24               | 4.96           | 1.59 | 0.32 | 1256  | 4.77 | 1.53 | 0.32 | 1325  | 4.66 | 1.49 | 0.32 | 1366  | 4.51 | 1.44 | 0.32 | 1435  |
| 26               | 18               | 4.35           | 3.13 | 0.72 | 1104  | 4.16 | 3.00 | 0.72 | 1159  | 4.00 | 2.88 | 0.72 | 1214  | 3.85 | 2.77 | 0.72 | 1270  |
| 26               | 20               | 4.53           | 2.72 | 0.60 | 1159  | 4.35 | 2.61 | 0.60 | 1228  | 4.22 | 2.53 | 0.60 | 1256  | 4.07 | 2.44 | 0.60 | 1311  |
| 26               | 22               | 4.72           | 2.26 | 0.48 | 1201  | 4.55 | 2.18 | 0.48 | 1277  | 4.44 | 2.13 | 0.48 | 1311  | 4.26 | 2.04 | 0.48 | 1366  |
| 26               | 24               | 4.96           | 1.78 | 0.36 | 1256  | 4.77 | 1.72 | 0.36 | 1325  | 4.66 | 1.68 | 0.36 | 1366  | 4.51 | 1.63 | 0.36 | 1435  |
| 26               | 26               | 5.11           | 1.23 | 0.24 | 1325  | 4.96 | 1.19 | 0.24 | 1394  | 4.88 | 1.17 | 0.24 | 1435  | 4.74 | 1.14 | 0.24 | 1477  |
| 27               | 18               | 4.35           | 3.30 | 0.76 | 1104  | 4.16 | 3.16 | 0.76 | 1159  | 4.00 | 3.04 | 0.76 | 1214  | 3.85 | 2.92 | 0.76 | 1270  |
| 27               | 20               | 4.53           | 2.90 | 0.64 | 1159  | 4.35 | 2.78 | 0.64 | 1228  | 4.22 | 2.70 | 0.64 | 1256  | 4.07 | 2.60 | 0.64 | 1311  |
| 27               | 22               | 4.72           | 2.45 | 0.52 | 1201  | 4.55 | 2.37 | 0.52 | 1277  | 4.44 | 2.31 | 0.52 | 1311  | 4.26 | 2.21 | 0.52 | 1366  |
| 27               | 24               | 4.96           | 1.98 | 0.40 | 1256  | 4.77 | 1.91 | 0.40 | 1325  | 4.66 | 1.86 | 0.40 | 1366  | 4.51 | 1.81 | 0.40 | 1435  |
| 27               | 26               | 5.11           | 1.43 | 0.28 | 1325  | 4.96 | 1.39 | 0.28 | 1394  | 4.88 | 1.37 | 0.28 | 1435  | 4.74 | 1.33 | 0.28 | 1477  |
| 28               | 18               | 4.35           | 3.48 | 0.80 | 1104  | 4.16 | 3.33 | 0.80 | 1159  | 4.00 | 3.20 | 0.80 | 1214  | 3.85 | 3.08 | 0.80 | 1270  |
| 28               | 20               | 4.53           | 3.08 | 0.68 | 1159  | 4.35 | 2.96 | 0.68 | 1228  | 4.22 | 2.87 | 0.68 | 1256  | 4.07 | 2.77 | 0.68 | 1311  |
| 28               | 22               | 4.72           | 2.64 | 0.56 | 1201  | 4.55 | 2.55 | 0.56 | 1277  | 4.44 | 2.49 | 0.56 | 1311  | 4.26 | 2.38 | 0.56 | 1366  |
| 28               | 24               | 4.96           | 2.18 | 0.44 | 1256  | 4.77 | 2.10 | 0.44 | 1325  | 4.66 | 2.05 | 0.44 | 1366  | 4.51 | 1.99 | 0.44 | 1435  |
| 28               | 26               | 5.11           | 1.63 | 0.32 | 1325  | 4.96 | 1.59 | 0.32 | 1394  | 4.88 | 1.56 | 0.32 | 1435  | 4.74 | 1.52 | 0.32 | 1477  |
| 29               | 18               | 4.35           | 3.65 | 0.84 | 1104  | 4.16 | 3.50 | 0.84 | 1159  | 4.00 | 3.36 | 0.84 | 1214  | 3.85 | 3.23 | 0.84 | 1270  |
| 29               | 20               | 4.53           | 3.26 | 0.72 | 1159  | 4.35 | 3.13 | 0.72 | 1228  | 4.22 | 3.04 | 0.72 | 1256  | 4.07 | 2.93 | 0.72 | 1311  |
| 29               | 22               | 4.72           | 2.83 | 0.60 | 1201  | 4.55 | 2.73 | 0.60 | 1277  | 4.44 | 2.66 | 0.60 | 1311  | 4.26 | 2.55 | 0.60 | 1366  |
| 29               | 24               | 4.96           | 2.38 | 0.48 | 1256  | 4.77 | 2.29 | 0.48 | 1325  | 4.66 | 2.24 | 0.48 | 1366  | 4.51 | 2.17 | 0.48 | 1435  |
| 29               | 26               | 5.11           | 1.84 | 0.36 | 1325  | 4.96 | 1.78 | 0.36 | 1394  | 4.88 | 1.76 | 0.36 | 1435  | 4.74 | 1.70 | 0.36 | 1477  |
| 30               | 18               | 4.35           | 3.83 | 0.88 | 1104  | 4.16 | 3.66 | 0.88 | 1159  | 4.00 | 3.52 | 0.88 | 1214  | 3.85 | 3.39 | 0.88 | 1270  |
| 30               | 20               | 4.53           | 3.44 | 0.76 | 1159  | 4.35 | 3.30 | 0.76 | 1228  | 4.22 | 3.21 | 0.76 | 1256  | 4.07 | 3.09 | 0.76 | 1311  |
| 30               | 22               | 4.72           | 3.02 | 0.64 | 1201  | 4.55 | 2.91 | 0.64 | 1277  | 4.44 | 2.84 | 0.64 | 1311  | 4.26 | 2.72 | 0.64 | 1366  |
| 30               | 24               | 4.96           | 2.58 | 0.52 | 1256  | 4.77 | 2.48 | 0.52 | 1325  | 4.66 | 2.42 | 0.52 | 1366  | 4.51 | 2.35 | 0.52 | 1435  |
| 30               | 26               | 5.11           | 2.04 | 0.40 | 1325  | 4.96 | 1.98 | 0.40 | 1394  | 4.88 | 1.95 | 0.40 | 1435  | 4.74 | 1.89 | 0.40 | 1477  |
| 31               | 18               | 4.35           | 4.00 | 0.92 | 1104  | 4.16 | 3.83 | 0.92 | 1159  | 4.00 | 3.68 | 0.92 | 1214  | 3.85 | 3.54 | 0.92 | 1270  |
| 31               | 20               | 4.53           | 3.63 | 0.80 | 1159  | 4.35 | 3.48 | 0.80 | 1228  | 4.22 | 3.37 | 0.80 | 1256  | 4.07 | 3.26 | 0.80 | 1311  |
| 31               | 22               | 4.72           | 3.21 | 0.68 | 1201  | 4.55 | 3.09 | 0.68 | 1277  | 4.44 | 3.02 | 0.68 | 1311  | 4.26 | 2.89 | 0.68 | 1366  |
| 31               | 24               | 4.96           | 2.78 | 0.56 | 1256  | 4.77 | 2.67 | 0.56 | 1325  | 4.66 | 2.61 | 0.56 | 1366  | 4.51 | 2.53 | 0.56 | 1435  |
| 31               | 26               | 5.11           | 2.25 | 0.44 | 1325  | 4.96 | 2.18 | 0.44 | 1394  | 4.88 | 2.15 | 0.44 | 1435  | 4.74 | 2.08 | 0.44 | 1477  |
| 32               | 18               | 4.35           | 4.17 | 0.96 | 1104  | 4.16 | 4.00 | 0.96 | 1159  | 4.00 | 3.84 | 0.96 | 1214  | 3.85 | 3.69 | 0.96 | 1270  |
| 32               | 20               | 4.53           | 3.81 | 0.84 | 1159  | 4.35 | 3.65 | 0.84 | 1228  | 4.22 | 3.54 | 0.84 | 1256  | 4.07 | 3.42 | 0.84 | 1311  |
| 32               | 22               | 4.72           | 3.40 | 0.72 | 1201  | 4.55 | 3.28 | 0.72 | 1277  | 4.44 | 3.20 | 0.72 | 1311  | 4.26 | 3.06 | 0.72 | 1366  |
| 32               | 24               | 4.96           | 2.97 | 0.60 | 1256  | 4.77 | 2.86 | 0.60 | 1325  | 4.66 | 2.80 | 0.60 | 1366  | 4.51 | 2.71 | 0.60 | 1435  |
| 32               | 26               | 5.11           | 2.45 | 0.48 | 1325  | 4.96 | 2.38 | 0.48 | 1394  | 4.88 | 2.34 | 0.48 | 1435  | 4.74 | 2.27 | 0.48 | 1477  |

**NOTE** Q : Total capacity (kW) SHF : Sensible heat factor  
 SHC : Sensible heat capacity (kW) INPUT : Total power input (W)

# PERFORMANCE DATA

COOL operation(240V)

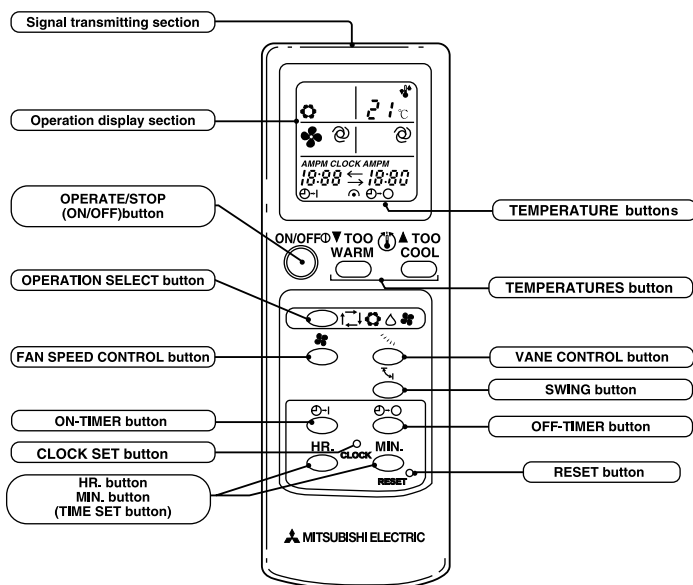
MCF-13NV -E3 : MUCF-13NV -E3

CAPACITY : 3.7 kW INPUT : 1380 W SHF : 0.70

|               |               | OUTDOOR DB(°C) |      |      |       |      |      |      |       |      |      |      |       |
|---------------|---------------|----------------|------|------|-------|------|------|------|-------|------|------|------|-------|
| INDOOR DB(°C) | INDOOR WB(°C) | 35             |      |      |       | 40   |      |      |       | 43   |      |      |       |
|               |               | Q              | SHC  | SHF  | INPUT | Q    | SHC  | SHF  | INPUT | Q    | SHC  | SHF  | INPUT |
| 21            | 18            | 3.63           | 1.89 | 0.52 | 1352  | 3.33 | 1.73 | 0.52 | 1435  | 3.20 | 1.66 | 0.52 | 1463  |
| 21            | 20            | 3.81           | 1.52 | 0.40 | 1408  | 3.55 | 1.42 | 0.40 | 1477  | 3.42 | 1.37 | 0.40 | 1518  |
| 22            | 18            | 3.63           | 2.03 | 0.56 | 1352  | 3.33 | 1.86 | 0.56 | 1435  | 3.20 | 1.79 | 0.56 | 1463  |
| 22            | 20            | 3.81           | 1.68 | 0.44 | 1408  | 3.55 | 1.56 | 0.44 | 1477  | 3.42 | 1.51 | 0.44 | 1518  |
| 22            | 22            | 4.03           | 1.29 | 0.32 | 1463  | 3.77 | 1.21 | 0.32 | 1546  | 3.64 | 1.17 | 0.32 | 1573  |
| 23            | 18            | 3.63           | 2.18 | 0.60 | 1352  | 3.33 | 2.00 | 0.60 | 1435  | 3.20 | 1.92 | 0.60 | 1463  |
| 23            | 20            | 3.81           | 1.83 | 0.48 | 1408  | 3.55 | 1.70 | 0.48 | 1477  | 3.42 | 1.64 | 0.48 | 1518  |
| 23            | 22            | 4.03           | 1.45 | 0.36 | 1463  | 3.77 | 1.36 | 0.36 | 1546  | 3.64 | 1.31 | 0.36 | 1573  |
| 24            | 18            | 3.63           | 2.32 | 0.64 | 1352  | 3.33 | 2.13 | 0.64 | 1435  | 3.20 | 2.05 | 0.64 | 1463  |
| 24            | 20            | 3.81           | 1.98 | 0.52 | 1408  | 3.55 | 1.85 | 0.52 | 1477  | 3.42 | 1.78 | 0.52 | 1518  |
| 24            | 22            | 4.03           | 1.61 | 0.40 | 1463  | 3.77 | 1.51 | 0.40 | 1546  | 3.64 | 1.46 | 0.40 | 1573  |
| 24            | 24            | 4.26           | 1.19 | 0.28 | 1518  | 4.00 | 1.12 | 0.28 | 1587  | 3.89 | 1.09 | 0.28 | 1622  |
| 25            | 18            | 3.63           | 2.47 | 0.68 | 1352  | 3.33 | 2.26 | 0.68 | 1435  | 3.20 | 2.18 | 0.68 | 1463  |
| 25            | 20            | 3.81           | 2.13 | 0.56 | 1408  | 3.55 | 1.99 | 0.56 | 1477  | 3.42 | 1.92 | 0.56 | 1518  |
| 25            | 22            | 4.03           | 1.77 | 0.44 | 1463  | 3.77 | 1.66 | 0.44 | 1546  | 3.64 | 1.60 | 0.44 | 1573  |
| 25            | 24            | 4.26           | 1.36 | 0.32 | 1518  | 4.00 | 1.28 | 0.32 | 1587  | 3.89 | 1.24 | 0.32 | 1622  |
| 26            | 18            | 3.63           | 2.61 | 0.72 | 1352  | 3.33 | 2.40 | 0.72 | 1435  | 3.20 | 2.30 | 0.72 | 1463  |
| 26            | 20            | 3.81           | 2.29 | 0.60 | 1408  | 3.55 | 2.13 | 0.60 | 1477  | 3.42 | 2.05 | 0.60 | 1518  |
| 26            | 22            | 4.03           | 1.94 | 0.48 | 1463  | 3.77 | 1.81 | 0.48 | 1546  | 3.64 | 1.75 | 0.48 | 1573  |
| 26            | 24            | 4.26           | 1.53 | 0.36 | 1518  | 4.00 | 1.44 | 0.36 | 1587  | 3.89 | 1.40 | 0.36 | 1622  |
| 26            | 26            | 4.48           | 1.07 | 0.24 | 1573  | 4.22 | 1.01 | 0.24 | 1642  | 4.09 | 0.98 | 0.24 | 1677  |
| 27            | 18            | 3.63           | 2.76 | 0.76 | 1352  | 3.33 | 2.53 | 0.76 | 1435  | 3.20 | 2.43 | 0.76 | 1463  |
| 27            | 20            | 3.81           | 2.44 | 0.64 | 1408  | 3.55 | 2.27 | 0.64 | 1477  | 3.42 | 2.19 | 0.64 | 1518  |
| 27            | 22            | 4.03           | 2.10 | 0.52 | 1463  | 3.77 | 1.96 | 0.52 | 1546  | 3.64 | 1.90 | 0.52 | 1573  |
| 27            | 24            | 4.26           | 1.70 | 0.40 | 1518  | 4.00 | 1.60 | 0.40 | 1587  | 3.89 | 1.55 | 0.40 | 1622  |
| 27            | 26            | 4.48           | 1.25 | 0.28 | 1573  | 4.22 | 1.18 | 0.28 | 1642  | 4.09 | 1.14 | 0.28 | 1677  |
| 28            | 18            | 3.63           | 2.90 | 0.80 | 1352  | 3.33 | 2.66 | 0.80 | 1435  | 3.20 | 2.56 | 0.80 | 1463  |
| 28            | 20            | 3.81           | 2.59 | 0.68 | 1408  | 3.55 | 2.42 | 0.68 | 1477  | 3.42 | 2.33 | 0.68 | 1518  |
| 28            | 22            | 4.03           | 2.26 | 0.56 | 1463  | 3.77 | 2.11 | 0.56 | 1546  | 3.64 | 2.04 | 0.56 | 1573  |
| 28            | 24            | 4.26           | 1.87 | 0.44 | 1518  | 4.00 | 1.76 | 0.44 | 1587  | 3.89 | 1.71 | 0.44 | 1622  |
| 28            | 26            | 4.48           | 1.43 | 0.32 | 1573  | 4.22 | 1.35 | 0.32 | 1642  | 4.09 | 1.31 | 0.32 | 1677  |
| 29            | 18            | 3.63           | 3.05 | 0.84 | 1352  | 3.33 | 2.80 | 0.84 | 1435  | 3.20 | 2.69 | 0.84 | 1463  |
| 29            | 20            | 3.81           | 2.74 | 0.72 | 1408  | 3.55 | 2.56 | 0.72 | 1477  | 3.42 | 2.46 | 0.72 | 1518  |
| 29            | 22            | 4.03           | 2.42 | 0.60 | 1463  | 3.77 | 2.26 | 0.60 | 1546  | 3.64 | 2.19 | 0.60 | 1573  |
| 29            | 24            | 4.26           | 2.04 | 0.48 | 1518  | 4.00 | 1.92 | 0.48 | 1587  | 3.89 | 1.86 | 0.48 | 1622  |
| 29            | 26            | 4.48           | 1.61 | 0.36 | 1573  | 4.22 | 1.52 | 0.36 | 1642  | 4.09 | 1.47 | 0.36 | 1677  |
| 30            | 18            | 3.63           | 3.19 | 0.88 | 1352  | 3.33 | 2.93 | 0.88 | 1435  | 3.20 | 2.82 | 0.88 | 1463  |
| 30            | 20            | 3.81           | 2.90 | 0.76 | 1408  | 3.55 | 2.70 | 0.76 | 1477  | 3.42 | 2.60 | 0.76 | 1518  |
| 30            | 22            | 4.03           | 2.58 | 0.64 | 1463  | 3.77 | 2.42 | 0.64 | 1546  | 3.64 | 2.33 | 0.64 | 1573  |
| 30            | 24            | 4.26           | 2.21 | 0.52 | 1518  | 4.00 | 2.08 | 0.52 | 1587  | 3.89 | 2.02 | 0.52 | 1622  |
| 30            | 26            | 4.48           | 1.79 | 0.40 | 1573  | 4.22 | 1.69 | 0.40 | 1642  | 4.09 | 1.64 | 0.40 | 1677  |
| 31            | 18            | 3.63           | 3.34 | 0.92 | 1352  | 3.33 | 3.06 | 0.92 | 1435  | 3.20 | 2.94 | 0.92 | 1463  |
| 31            | 20            | 3.81           | 3.05 | 0.80 | 1408  | 3.55 | 2.84 | 0.80 | 1477  | 3.42 | 2.74 | 0.80 | 1518  |
| 31            | 22            | 4.03           | 2.74 | 0.68 | 1463  | 3.77 | 2.57 | 0.68 | 1546  | 3.64 | 2.48 | 0.68 | 1573  |
| 31            | 24            | 4.26           | 2.38 | 0.56 | 1518  | 4.00 | 2.24 | 0.56 | 1587  | 3.89 | 2.18 | 0.56 | 1622  |
| 31            | 26            | 4.48           | 1.97 | 0.44 | 1573  | 4.22 | 1.86 | 0.44 | 1642  | 4.09 | 1.80 | 0.44 | 1677  |
| 32            | 18            | 3.63           | 3.48 | 0.96 | 1352  | 3.33 | 3.20 | 0.96 | 1435  | 3.20 | 3.07 | 0.96 | 1463  |
| 32            | 20            | 3.81           | 3.20 | 0.84 | 1408  | 3.55 | 2.98 | 0.84 | 1477  | 3.42 | 2.87 | 0.84 | 1518  |
| 32            | 22            | 4.03           | 2.90 | 0.72 | 1463  | 3.77 | 2.72 | 0.72 | 1546  | 3.64 | 2.62 | 0.72 | 1573  |
| 32            | 24            | 4.26           | 2.55 | 0.60 | 1518  | 4.00 | 2.40 | 0.60 | 1587  | 3.89 | 2.33 | 0.60 | 1622  |
| 32            | 26            | 4.48           | 2.15 | 0.48 | 1573  | 4.22 | 2.02 | 0.48 | 1642  | 4.09 | 1.96 | 0.48 | 1677  |

**NOTE** Q : Total capacity (kW) SHF : Sensible heat factor  
SHC : Sensible heat capacity (kW) INPUT : Total power input (W)

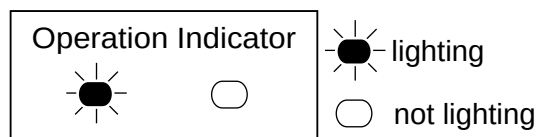
## WIRELESS REMOTE CONTROLLER



## INDOOR UNIT DISPLAY SECTION

## OPERATION INDICATOR lamp

The operation indicator at the right side of the indoor unit indicates the operation state.



| Indication | Operation state                                                                                                                         | Difference between set temperature and room temperature |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
|            | This shows that the air conditioner is operating to reach the target temperature. Please wait until the target temperature is obtained. | Approx. 2 °C or more                                    |
|            | This shows that the room temperature is approaching the target temperature.                                                             | Approx. 2 °C or less                                    |

## MCF-13NV - E3

Once the operation mode are set, the same operation mode can be repeated by simply turning the OPERATE/STOP(ON/OFF) button ON. Indoor unit receives the signal with a beep tone. When the system turns off, 3-minutes time delay will operate to protect system from overload and compressor will not restart for 3 minutes.

## 9-1. "I FEEL CONTROL" ( ) OPERATION

- (1) Press OPERATE/STOP(ON/OFF) button on the remote controller. OPERATION INDICATOR lamp of the indoor unit turns on with a beep tone.
- (2) Select "I FEEL CONTROL" ( ) mode with the OPERATION SELECT button.
- (3) The operation mode is determined by the room temperature at start-up of the operation.

| Initial room temperature       | Mode                          |
|--------------------------------|-------------------------------|
| 25°C or more                   | COOL mode of "I FEEL CONTROL" |
| more than 13°C, less than 25°C | DRY mode of "I FEEL CONTROL"  |

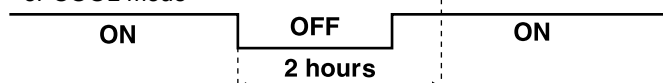
- Once the mode is fixed, the mode does not change by room temperature afterwards.
- Under the ON-TIMER ( ) operation, mode is determined according to the room temperature at set time the operation starts.
- When the system is stopped with the OPERATE/STOP(ON/OFF) button on the remote controller, and restarted within 2 hours in "I FEEL CONTROL" ( ) mode, the system operates in previous mode automatically regardless of the room temperature.

## Example

**Previous operation**  
COOL mode of "I FEEL CONTROL" or COOL mode

## Restart

COOL mode of "I FEEL CONTROL"



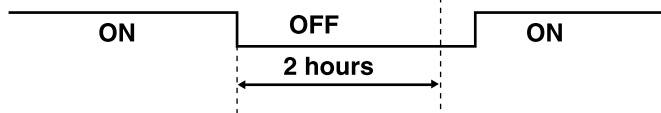
When the system is restarted after 2 hours and more, the operation mode is determined by the room temperature at start-up of the operation.

## Example

**Previous operation**  
COOL mode of "I FEEL CONTROL" or COOL mode

## Restart

COOL or DRY mode of "I FEEL CONTROL" that is determined by room temperature at start-up of the operation.



(4) The initial set temperature is decided by the initial room temperature.

| Mode                             | Initial room temperature      | Initial set temperature              |    |
|----------------------------------|-------------------------------|--------------------------------------|----|
| COOL mode of<br>"I FEEL CONTROL" | 26℃ or more                   | 24℃                                  | ✻1 |
|                                  | 25℃ to 26℃                    | Initial room temperature<br>minus 2℃ |    |
| DRY mode of<br>"I FEEL CONTROL"  | more than 13℃ , less than 25℃ | Initial room temperature<br>minus 2℃ |    |

※1 When the system is restarted with the remote controller, the system operates with the previous set temperature regardless of the the room temperature at restart.  
The set temperature is calculated by the previous set temperature.

(5) TEMPERATURE buttons

In "I FEEL CONTROL" (  ) mode, set temperature is decided by the microprocessor based on the room temperature.  
In addition, set temperature can be controlled by TOO WARM or TOO COOL buttons when you feel too warm or too cool.  
Each time the TOO WARM or TOO COOL button is pressed, the indoor unit receives the signal and emits a beep tone.

#### ● Fuzzy control

When the TOO COOL or TOO WARM button is pressed, the microprocessor changes the set temperature, considering the room temperature, the frequency of pressing TOO COOL or TOO WARM button and the user's preference to heat or cool. So this is called "Fuzzy control", and works only in "I FEEL CONTROL" mode.  
In DRY mode of "I FEEL CONTROL", the set temperature doesn't change.

#### ▲TOO

COOL ... To raise the set temperature 1~2 degrees(°C)



#### ▼TOO

WARM ... To lower the set temperature 1~2 degrees(°C)



### — COOL mode of "I FEEL CONTROL" —

#### 1. Indoor fan speed control

Indoor fan operates at the set speed by FAN SPEED CONTROL button.  
In Auto the fan speed is as follows.

| Initial temperature difference                                   | Fan speed | Difference between room temperature and set temperature during operation. |
|------------------------------------------------------------------|-----------|---------------------------------------------------------------------------|
| Room temperature minus set temperature : 2 degrees or more       | Hi        | 2deg. 4deg.                                                               |
| Room temperature minus set temperature : Between 1 and 2 degrees | Me        | 1deg. 1.7deg.                                                             |
| Room temperature minus set temperature : less than 1 degree      | Lo        |                                                                           |

#### 2. Coil frost prevention

##### ① Temperature control

When the indoor coil thermistor RT12 reads -1°C or below, the coil frost prevention mode starts immediately.  
However, the coil frost prevention doesn't work after 5 minute since the compressor has started.  
The indoor fan operates at the set speed and the compressor stops for 5 minutes.  
After that, if RT12 still reads below -1°C, this mode prolonged until the RT12 reads over -1°C.

##### ② Time control

When the three conditions as follows have been satisfied for 1 hour and 45 minutes, compressor stops for 3 minutes.

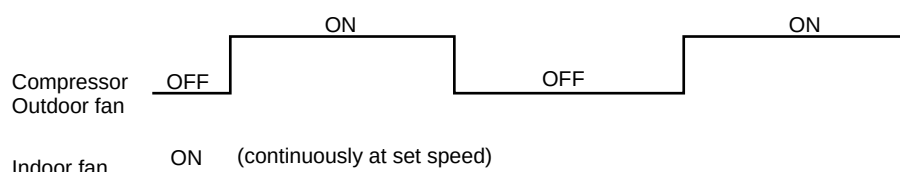
- Compressor has been continuously operating.
- Indoor fan speed is Lo or Me.
- Room temperature is below 26°C.

When compressor stops, the accumulated time is cancelled and when compressor restarts, time counting starts from the beginning.

Time counting also stops temporarily when the indoor fan speed becomes Hi or the room temperature exceeds 26°C.  
However, when two of the above conditions (b. and c.) are satisfied again. Time accumulation is resumed.

#### Operation chart

##### Example



## —DRY mode of “I FEEL CONTROL”—

The system for dry operation uses the same refrigerant circuit as the cooling circuit.

The compressor and the indoor fan are controlled by the temperature.

By such controls, indoor air flow amounts will be reduced in order to lower humidity without much room temperature decrease.

### 1. Indoor fan speed control

Indoor fan operates at the set speed by FAN SPEED CONTROL button.

However, in AUTO fan operation, fan speed becomes Lo.

### 2. The operation of the compressor and indoor / outdoor fan

Compressor operates by temperature control and time control.

Set temperature is controlled to fall 2°C from initial room temperature.

Indoor fan and outdoor fan operate in the same cycle as the compressor.

- When the room temperature is 23°C or over:

When the thermostat is ON, the compressor repeats 8 minutes ON and 3 minutes OFF.

When the thermostat is OFF, the compressor repeats 4 minutes OFF and 1 minute ON.

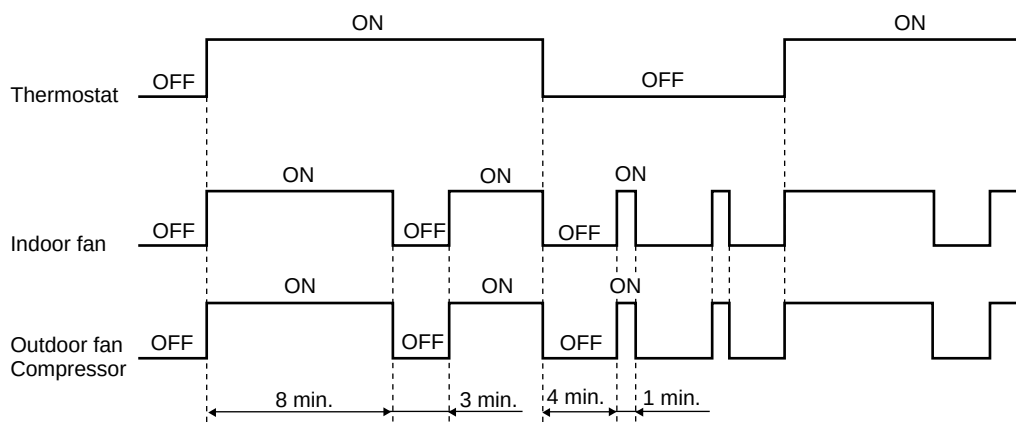
- When the room temperature is under 23°C:

When the thermostat is ON, the compressor repeats 2 minutes ON and 3 minutes OFF.

When the thermostat is OFF, the compressor repeats 4 minutes OFF and 1 minute ON.

## Operation time chart

### Example



### 3. Coil frost prevention

- The operation is as same as coil frost prevention during COOL mode of “I FEEL CONTROL”.

- Indoor fan operates at the set speed and the compressor stops for 5 minutes, because protection (Coil frost prevention) has the priority. However, when coil frost prevention works while the compressor is not operating, its speed becomes Lo.

## 9-2. COOL ( ❄ ) OPERATION

(1) Press OPERATE/STOP(ON/OFF) button.

OPERATION INDICATOR lamp of the indoor unit turns on with a beep tone.

(2) Select COOL mode with the OPERATION SELECT button.

(3) Press the TEMPERATURE buttons.

(TOO WARM or TOO COOL button) to select the desired temperature.

The setting range is 16 ~ 31°C

- \* Indoor fan continues to operate regardless of thermostat's OFF-ON at set speed.

- \* Coil frost prevention is as same as COOL mode of “I FEEL CONTROL”.

## 9-3. DRY ( ☹ ) OPERATION

(1) Press OPERATE/STOP(ON/OFF) button.

OPERATION INDICATOR lamp of the indoor unit turns on with a beep tone.

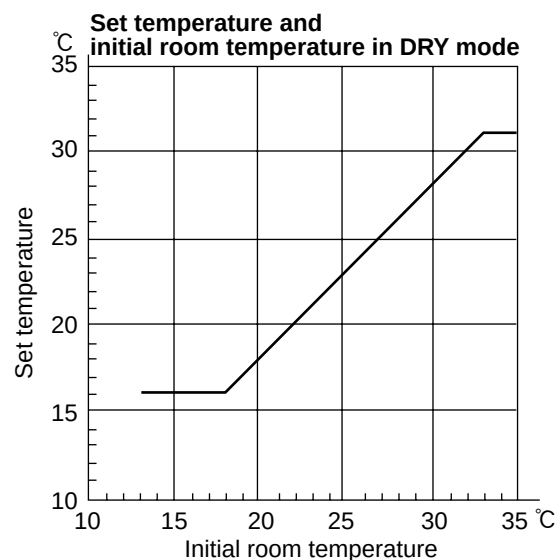
(2) Select DRY mode with the OPERATION SELECT button.

(3) The microprocessor reads the room temperature and determines the set temperature. Set temperature is as shown on the right chart. Thermostat (SET TEMP.) does not work.

The other operations are as same as DRY mode of “I FEEL CONTROL”.

(4) DRY operation will not function when the room temperature is 13°C or below.

(5) When DRY operation functions, the fan speed is lower than cool operation.

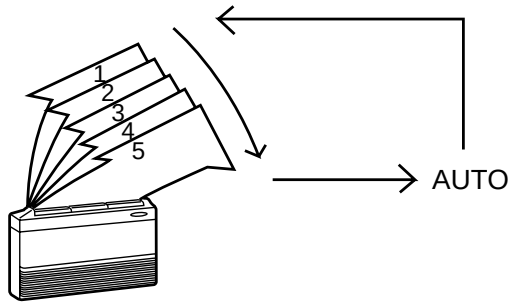


#### 9-4. FAN ( ) OPERATION

- (1) Press OPERATE/STOP (ON/OFF) button.
- (2) Select FAN mode with the OPERATION SELECT button.
- (3) Select the desired fan speed. When AUTO, it becomes Lo.  
Only indoor fan operates.  
Outdoor unit does not operate.

#### 9-5. AUTO VANE OPERATION

- (1) Vane motor drive  
This model is equipped with a stepping motor for the vane. The rotating direction, speed, and angle of the motor are controlled by pulse signals (approx. 12V) transmitted from indoor microprocessor.
- (2) Each time the VANE CONTROL (  ) button is pressed, angle of horizontal vane is changed in sequence, from 1, 2, 3, 4, 5 to AUTO.



- (3) Positioning  
The vane is once pressed to the vane stopper below to confirm the standard position and then set to the desired angle. Confirming of standard position is performed in case of follows.
  - (a) When the OPERATE/STOP(ON/OFF) button is pressed.
  - (b) When the vane control is changed from AUTO to MANUAL.
  - (c) When the SWING is finished.
  - (d) When the test run starts.
  - (e) When the power supply turns ON.

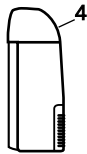
- (4) VANE AUTO mode  
In VANE AUTO mode, the microprocessor automatically determines the vane angle and operation to make the optimum room-temperature distribution.

1. In COOL and DRY operation

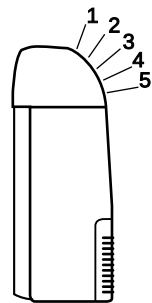


Vane angle is fixed to position 1.

2. In FAN operation



Vane angle is fixed to position 4.



- (5) STOP (operation OFF) and ON-TIMER standby  
When the following cases occur, the vane returns to the closed position.
  - (a) When the OPERATE/STOP (ON/OFF) button is pressed (POWER OFF).
  - (b) When the operation is stopped by the emergency operation.
  - (c) When the ON-TIMER is on standby.
- (6) Dew prevention  
During COOL or DRY operation at Position 4 or 5 when the compressor cumulative operation time exceeds 1 hour, the angle of horizontal vane automatically changes to Position 1 for dew prevention.
- (7) SWING MODE (  )  
By pressing the SWING (  ) button, horizontal vane swings vertically between Position 1 and 5. The remote controller displays “  ”.  
If the VANE CONTROL (  ) button or SWING (  ) button is pressed during SWING mode or the operation stops or changes to other mode, SWING mode is released.

## 9-6. TIMER OPERATION

### 1. How to set the timer

- (1) Press OPERATE/STOP(ON/OFF) button to start the air conditioner.
- (2) Check that the current time is set correctly.

**NOTE** : Timer operation will not work without setting the current time. Initially "AM0:00" blinks at the current time display of TIME MONITOR, so set the current time correctly with CLOCK SET button.

- (3) Press ON-TIMER, OFF-TIMER button to select the operation.

"⊖→|" button ... AUTO START operation (ON timer)

"⊖→○" button ... AUTO STOP operation (OFF timer)

- (4) Press HR. and MIN. button to set the timer. Time setting is 10-minute units.

HR. and MIN. button will work when "⊖→|" or "⊖→○" mark is flashing.

These marks disappear in 1 minute.

After setting the ON timer, check that OPERATION INDICATOR lamp of the indoor unit lights.

**NOTE1** : Be sure to place the remote controller at the position where its signal can reach the air conditioner even during TIMER operation, or the set time may deviate within the range of about 10 minutes.

**NOTE2** : Reset the timer in the following cases, or the set time may deviate and other malfunctions may occur.

- A power failure occurs.
- The circuit breaker functions.

### 2. Cancel

TIMER setting can be cancelled with the TIMER CONTROL buttons. ("⊖→|" or "⊖→○")

To cancel the ON timer, press the "⊖→|" button.

To cancel the OFF timer, press the "⊖→○" button.

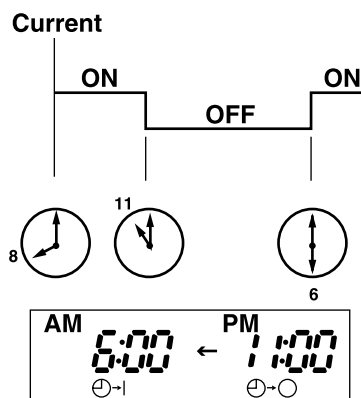
TIMER is cancelled and the display of set time disappears.

## PROGRAM TIMER

- The OFF timer and ON timer can be used in combination.
- "→" and "←" display show the order of the OFF timer and ON timer operation.

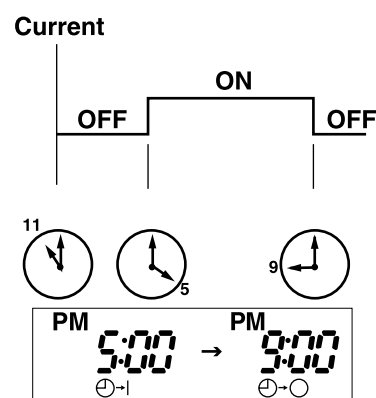
(Example 1) The current timer is 8:00 PM.

The unit turns off at 11:00 PM, and on at 6:00 AM.



(Example 2) The current time is 11:00 AM.

The unit turns on at 5:00 PM, and off at 9:00 PM.



**NOTE** : TIMER setting will be cancelled by power failure or breaker functioning.

### 9-7. EMERGENCY-TEST OPERATION

When the remote controller is missing, has failed or the batteries run down, press the EMERGENCY OPERATION switch on the front of the indoor unit. The unit will start and the OPERATION INDICATOR lamp will light.

The first 30 minutes of operation is the test run operation. This operation is for servicing. The indoor fan speed runs at high notch and the system is in continuous operation. (The thermostat is ON)

After 30 minutes of test run operation the system shifts to EMERGENCY COOL MODE with a set temperature of 24°C. The fan shifts to Me notch.

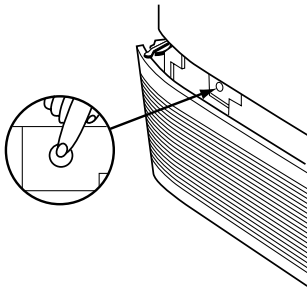
This operation continues until the EMERGENCY OPERATION switch is pressed again or the unit receives any signal from the remote controller. In case of latter normal operation will start.

The coil frost prevention works even in this operation.

In the test run or emergency operation, the horizontal vane operates in VANE AUTO mode.

**NOTE :** Do not press the EMERGENCY OPERATION switch during normal operation.

#### EMERGENCY OPERATION switch



#### OPERATION INDICATOR lamp



Press once <Cool>



Press once again <Stop>



### 9-8. AUTO RESTART FUNCTION

When the indoor unit is controlled with the remote controller, the operation mode, set temperature, and the fan speed are memorized by the the auto restart P.C. board.

The "AUTO RESTART" function sets to work the moment the power has restored after power failure. Then, the unit will restart automatically. However if the unit is operated in "I FEEL CONTROL" mode, before power failure, the operation is not memorized. In "I FEEL CONTROL" mode, the operation is decided by the initial room temperature.

#### **NOTE :**

- The operation settings are memorized when 10 seconds have passed after the remote controller was operated.
- If the main power is turned off or a power failure occurs while AUTO START/ STOP timer is active, the timer setting is cancelled.
- If the unit has been off with the remote controller before power failure, the auto restart function does not work as the power button of the remote controller is off.
- To prevent breaker off due to the rush of starting current, systematize other home appliances not to turn on at the same time.
- When some air conditioners are connected to the same supply system, if they are operated before power failure, the starting current of all the compressors may flow simultaneously at restart. Therefore, the special counter-measures are required to prevent the main voltage-drop or the rush of the starting current by adding to the system that allows the units to start one by one.

**MCF-13NV -E3****10-1. TIMER SHORT MODE**

For service, set time can be shortened by short circuit of JPG and JPS on the electronic control P.C. board.

The time will be shortened as follows.

3-minutes time delay : 3-minutes → 3-seconds.

AUTO START : 1 hour → 1-minute

AUTO STOP : 1 hour → 1-minute

Short the connector during the timer mode.

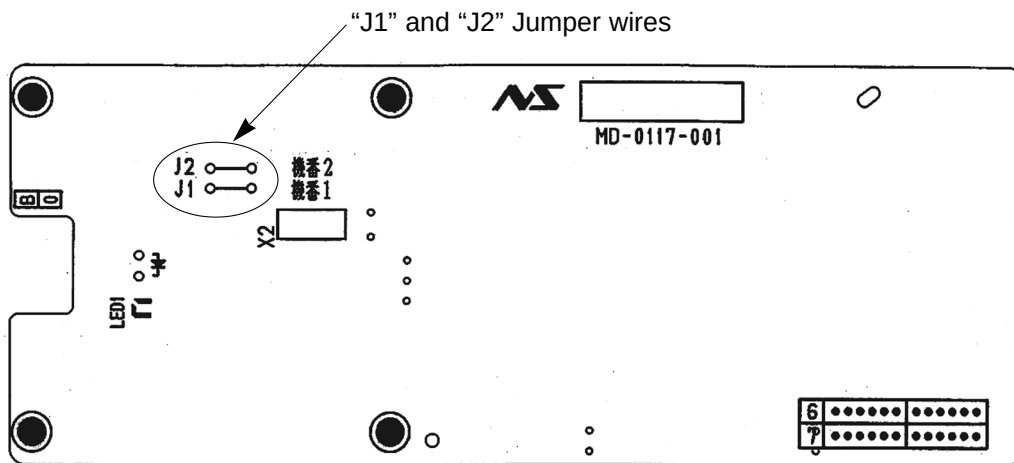
**10-2. P.C. BOARD MODIFICATION FOR INDIVIDUAL OPERATION**

A maximum of 4 indoor units with wireless remote controllers can be used in a room. In this case, to operate each indoor unit individually by each remote controller, P.C. boards of remote controller must be modified according to the number of the indoor unit.

**How to modify the remote controller P.C. board**

Remove batteries before modification.

The board has a print as shown below;



**NOTE :** Fore remodelling, take out the batteries at first.

After finish remodelling, put back the batteries then push the RESET button.

The P.C. board has the print "J1" and "J2". Jumper wires are mounted to each "J1" and "J2". Cut J1 and J2 according to the number of indoor unit as shown in Table 1.

After modification, push the RESET button.

Table1.

|           | 1 unit operation | 2 units operation | 3 units operation | 4 units operation  |
|-----------|------------------|-------------------|-------------------|--------------------|
| No.1 unit | No modification  | Same as at left   | Same as at left   | Same as at left    |
| No.2 unit | _____            | Cut J1            | Same as at left   | Same as at left    |
| No.3 unit | _____            | _____             | Cut J2            | Same as at left    |
| No.4 unit | _____            | _____             | _____             | Cut both J1 and J2 |

**NOTE :** At power supply failure or installation, indoor unit deletes the memory about remote controller. When

the power supply is turned on and indoor unit receives the first signals from the remote controller, the remote controller number is designated as the indoor unit number. Therefore at and after the second time indoor unit accepts the remote controller of the initial setting number.

At setting-error, turn the power supply off to cancel the individual operation, and then turn the power supply on to restart the setting.

**10-3. RELEASE OF AUTO RESTART FUNCTION**

The jumper line is soldered with "JHA (refer to page 27)" on the indoor electronic control P.C. board.

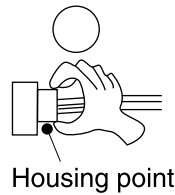
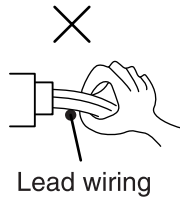
Remove the auto restart P.C. board from "Connector CN104".

**MCF-13NV -E3****11-1. Cautions on troubleshooting****1. Before troubleshooting, check the following:**

- 1) Check the power supply voltage.
- 2) Check the indoor/outdoor connecting wire for mis-wiring.

**2. Take care the following during servicing.**

- 1) Before servicing the air conditioner, be sure to first turn off the remote controller to stop the main unit, and then after confirming the horizontal vane is closed, turn off the breaker.
- 2) When removing the electronic control P.C. board, hold the edge of the board with care NOT to apply stress on the components.
- 3) When connecting or disconnecting the connectors, hold the housing of the connector. DO NOT pull the lead wires.

**3 Troubleshooting procedure**

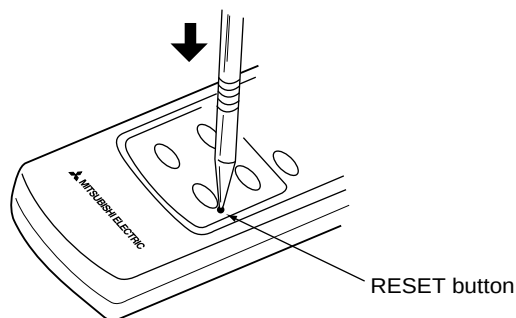
- 1) First, check if the OPERATION INDICATOR lamp on the indoor unit is flashing on and off to indicate an abnormality. To make sure, check how many times the abnormality indication is flashing on and off before starting service work.
- 2) If the electronic control P.C. board is supposed to be defective, check the copper foil pattern for disconnection and the components for bursting and discoloration.
- 3) When troubleshooting, refer to the flow chart and the check table on page 23.

**4 How to replace batteries**

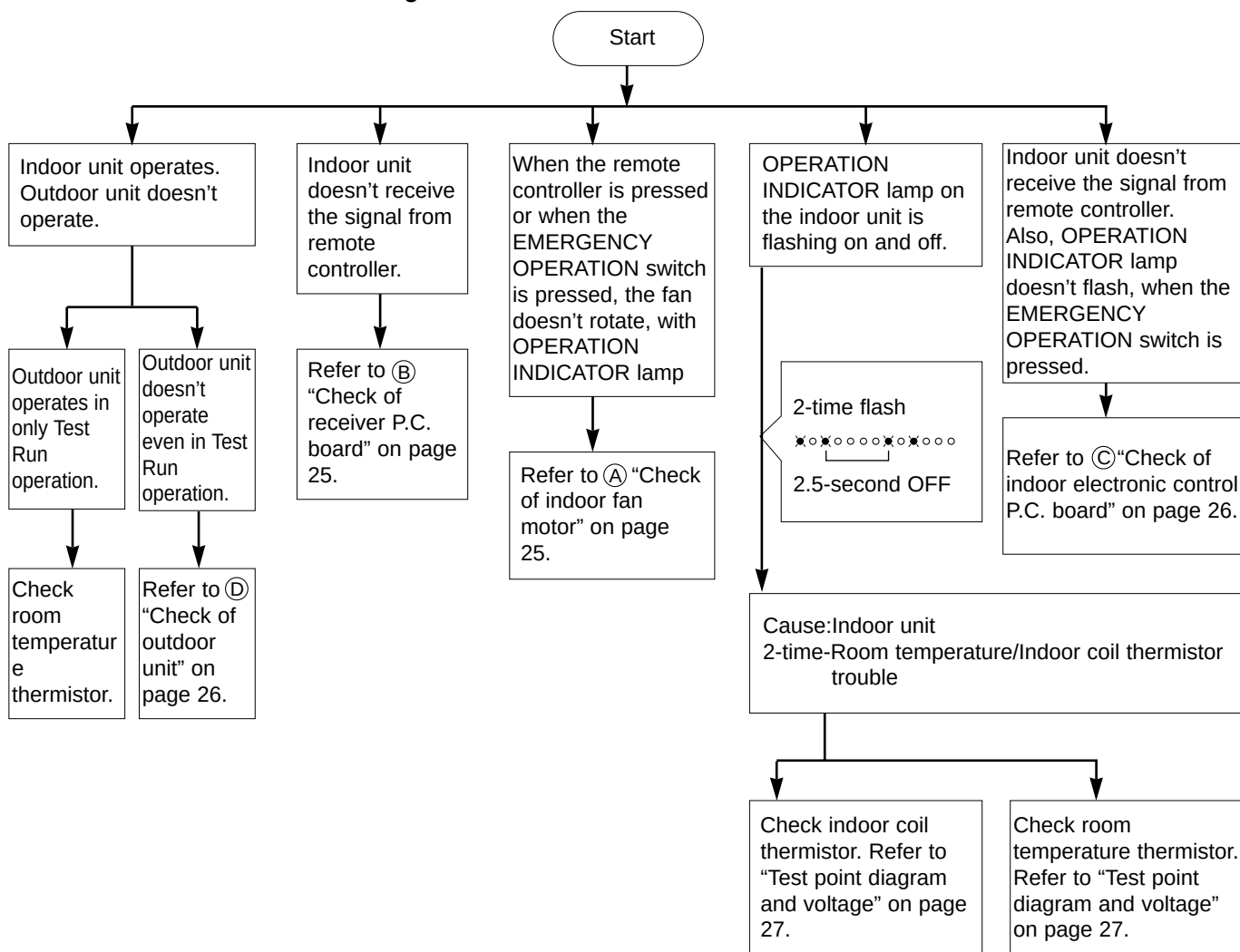
Weak batteries may cause the remote controller malfunction.

In this case, the remote controller can not be repaired only by the battery replacement. To operate the remote controller normally, replace the batteries in the following order.

This remote controller has the RESET button. After refilling new batteries, press the RESET button with tip end of ball point pen or the like, and then use the remote controller.



## 11-2. Instruction of troubleshooting



### 1. troubleshooting check table



※ Before taking measures, make sure that the symptom reappears, for accurate troubleshooting.

Self check table

| NO. | Abnormal point              | Indication                                   | Symptom                    | Detect method                                                                                          | Check point                                                                                                  |
|-----|-----------------------------|----------------------------------------------|----------------------------|--------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| 1   | Indoor coil thermistor      | 2-time flash<br>●●○○○○○○●●<br>2.5-second OFF | Outdoor unit does not run. | Detect Indoor coil/room temperature thermistor short or open circuit every 8 seconds during operation. | ● Check resistance of thermistor.<br>● Reconnect connector.<br>● Check indoor electronic control P.C. board. |
|     | Room temperature thermistor |                                              |                            |                                                                                                        |                                                                                                              |

## MCF-13NV -E3

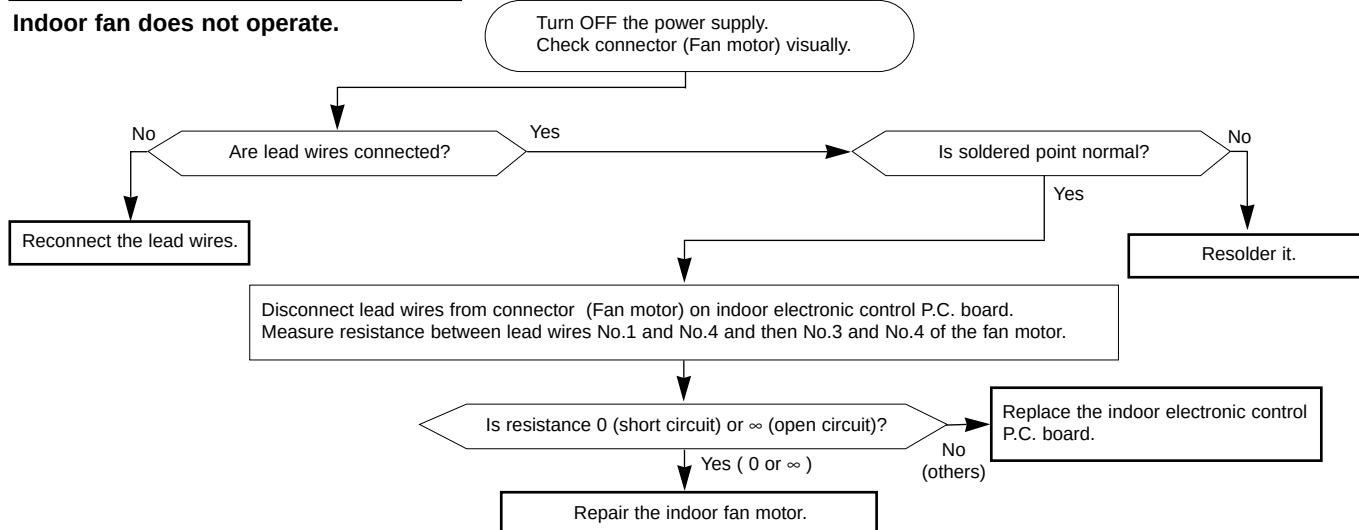
### 2. Trouble criterion of main parts

| Part name                   | Check method and criterion                                                                                                                                                                                                                                                                                                                                                                                                                      | Figure                    |        |          |                     |                           |                           |         |            |         |            |         |            |         |            |  |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|--------|----------|---------------------|---------------------------|---------------------------|---------|------------|---------|------------|---------|------------|---------|------------|--|
| Room temperature thermistor | Measure the resistance with a tester.<br>(Part temperature 10℃ ~ 30℃)                                                                                                                                                                                                                                                                                                                                                                           |                           |        |          |                     |                           |                           |         |            |         |            |         |            |         |            |  |
| Indoor coil thermistor      | <table><tr><td>Normal</td><td>Abnormal</td></tr><tr><td>8kΩ ~ 20kΩ</td><td>Opened or short-circuited</td></tr></table>                                                                                                                                                                                                                                                                                                                          |                           | Normal | Abnormal | 8kΩ ~ 20kΩ          | Opened or short-circuited |                           |         |            |         |            |         |            |         |            |  |
| Normal                      | Abnormal                                                                                                                                                                                                                                                                                                                                                                                                                                        |                           |        |          |                     |                           |                           |         |            |         |            |         |            |         |            |  |
| 8kΩ ~ 20kΩ                  | Opened or short-circuited                                                                                                                                                                                                                                                                                                                                                                                                                       |                           |        |          |                     |                           |                           |         |            |         |            |         |            |         |            |  |
| Compressor                  | Measure the resistance between the terminals with a tester.<br>(Coil wiring temperature -10℃ ~ 40℃)<br><table><tr><td></td><td>Normal</td><td>Abnormal</td></tr><tr><td>C-R</td><td>1.86~2.28Ω</td><td rowspan="2">Opened or short-circuited</td></tr><tr><td>C-S</td><td>3.5~4.29Ω</td></tr></table>                                                                                                                                           |                           | Normal | Abnormal | C-R                 | 1.86~2.28Ω                | Opened or short-circuited | C-S     | 3.5~4.29Ω  |         |            |         |            |         |            |  |
|                             | Normal                                                                                                                                                                                                                                                                                                                                                                                                                                          | Abnormal                  |        |          |                     |                           |                           |         |            |         |            |         |            |         |            |  |
| C-R                         | 1.86~2.28Ω                                                                                                                                                                                                                                                                                                                                                                                                                                      | Opened or short-circuited |        |          |                     |                           |                           |         |            |         |            |         |            |         |            |  |
| C-S                         | 3.5~4.29Ω                                                                                                                                                                                                                                                                                                                                                                                                                                       |                           |        |          |                     |                           |                           |         |            |         |            |         |            |         |            |  |
| Indoor fan motor            | Measure the resistance between the terminals with a tester.<br>(Coil wiring temperature 10℃ ~ 30℃)<br><table><tr><td></td><td>Normal</td><td>Abnormal</td></tr><tr><td>WHT-BLK</td><td>195~212Ω</td><td rowspan="5">Opened or short-circuited</td></tr><tr><td>BLK-YLW</td><td>44.1~47.8Ω</td></tr><tr><td>YLW-BLU</td><td>31.4~34.1Ω</td></tr><tr><td>BLU-BRN</td><td>42.6~46.1Ω</td></tr><tr><td>BRN-RED</td><td>22.3~24.2Ω</td></tr></table> |                           | Normal | Abnormal | WHT-BLK             | 195~212Ω                  | Opened or short-circuited | BLK-YLW | 44.1~47.8Ω | YLW-BLU | 31.4~34.1Ω | BLU-BRN | 42.6~46.1Ω | BRN-RED | 22.3~24.2Ω |  |
|                             | Normal                                                                                                                                                                                                                                                                                                                                                                                                                                          | Abnormal                  |        |          |                     |                           |                           |         |            |         |            |         |            |         |            |  |
| WHT-BLK                     | 195~212Ω                                                                                                                                                                                                                                                                                                                                                                                                                                        | Opened or short-circuited |        |          |                     |                           |                           |         |            |         |            |         |            |         |            |  |
| BLK-YLW                     | 44.1~47.8Ω                                                                                                                                                                                                                                                                                                                                                                                                                                      |                           |        |          |                     |                           |                           |         |            |         |            |         |            |         |            |  |
| YLW-BLU                     | 31.4~34.1Ω                                                                                                                                                                                                                                                                                                                                                                                                                                      |                           |        |          |                     |                           |                           |         |            |         |            |         |            |         |            |  |
| BLU-BRN                     | 42.6~46.1Ω                                                                                                                                                                                                                                                                                                                                                                                                                                      |                           |        |          |                     |                           |                           |         |            |         |            |         |            |         |            |  |
| BRN-RED                     | 22.3~24.2Ω                                                                                                                                                                                                                                                                                                                                                                                                                                      |                           |        |          |                     |                           |                           |         |            |         |            |         |            |         |            |  |
| Outdoor fan motor           | Measure the resistance between the terminals with a tester.<br>(Coil wiring temperature -10℃ ~ 40℃)<br><table><tr><td></td><td>Normal</td><td>Abnormal</td></tr><tr><td>WHT-BLK</td><td>155 ~ 191Ω</td><td rowspan="2">Opened or short-circuited</td></tr><tr><td>BLK-RED</td><td>363 ~ 445Ω</td></tr></table>                                                                                                                                  |                           | Normal | Abnormal | WHT-BLK             | 155 ~ 191Ω                | Opened or short-circuited | BLK-RED | 363 ~ 445Ω |         |            |         |            |         |            |  |
|                             | Normal                                                                                                                                                                                                                                                                                                                                                                                                                                          | Abnormal                  |        |          |                     |                           |                           |         |            |         |            |         |            |         |            |  |
| WHT-BLK                     | 155 ~ 191Ω                                                                                                                                                                                                                                                                                                                                                                                                                                      | Opened or short-circuited |        |          |                     |                           |                           |         |            |         |            |         |            |         |            |  |
| BLK-RED                     | 363 ~ 445Ω                                                                                                                                                                                                                                                                                                                                                                                                                                      |                           |        |          |                     |                           |                           |         |            |         |            |         |            |         |            |  |
| Vane motor                  | Measure the resistance between the terminals with a tester.<br>(Part temperature 10℃ ~ 30℃)<br><table><tr><td></td><td>Normal</td><td>Abnormal</td></tr><tr><td>Resistant per phase</td><td>329~357Ω</td><td>Opened or short-circuited</td></tr></table>                                                                                                                                                                                        |                           | Normal | Abnormal | Resistant per phase | 329~357Ω                  | Opened or short-circuited |         |            |         |            |         |            |         |            |  |
|                             | Normal                                                                                                                                                                                                                                                                                                                                                                                                                                          | Abnormal                  |        |          |                     |                           |                           |         |            |         |            |         |            |         |            |  |
| Resistant per phase         | 329~357Ω                                                                                                                                                                                                                                                                                                                                                                                                                                        | Opened or short-circuited |        |          |                     |                           |                           |         |            |         |            |         |            |         |            |  |

Ⓟ : INNER THERMOSTAT

## Ⓐ Check of indoor fan motor

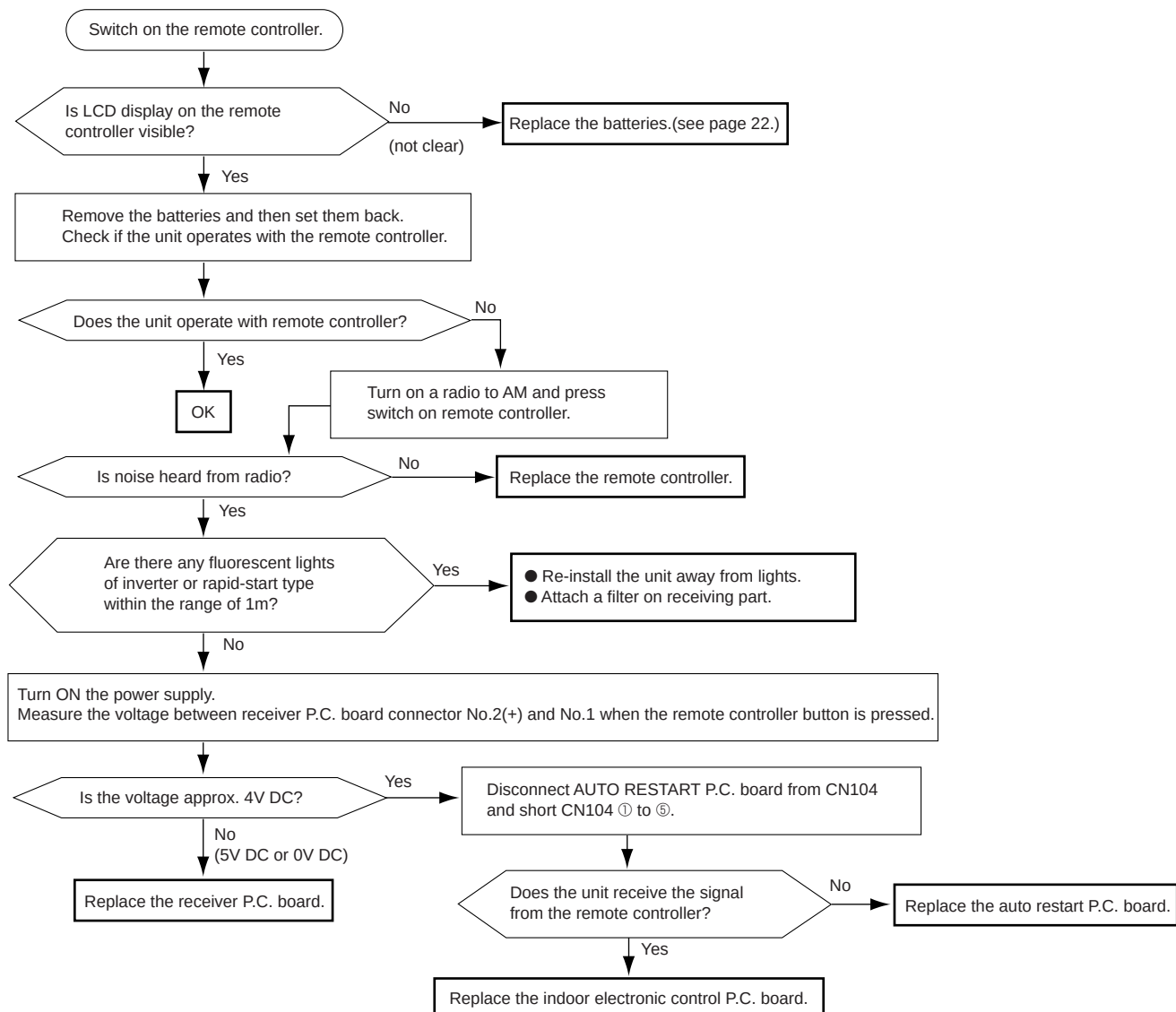
Indoor fan does not operate.



## Ⓑ Check of remote controller and receiver P.C. board

Indoor unit operates by pressing the EMERGENCY OPERATION switch, but does not operate with the remote controller.

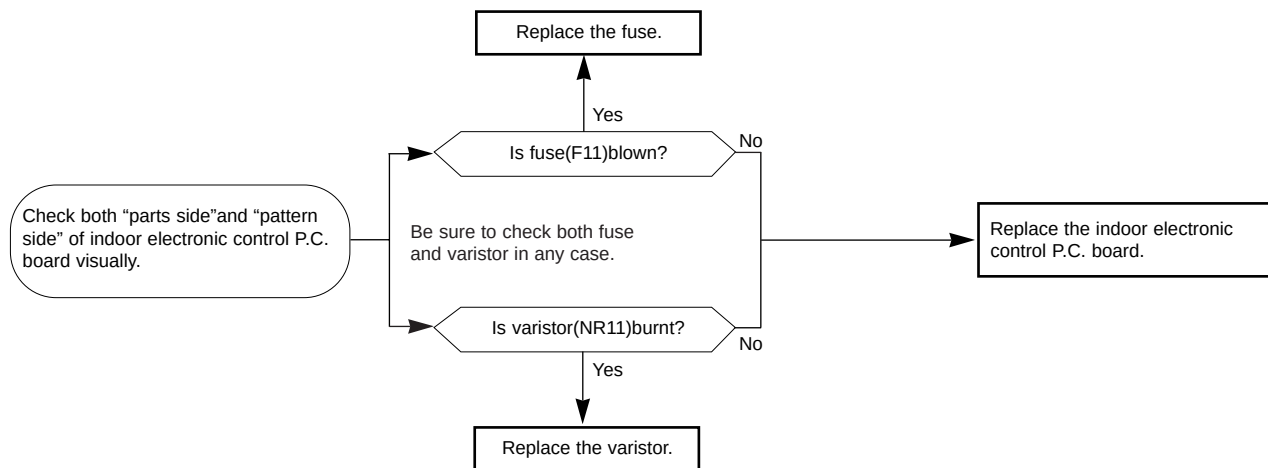
\*Check if the remote controller is exclusive for this air conditioner.



### © Check of indoor electronic control P.C. board

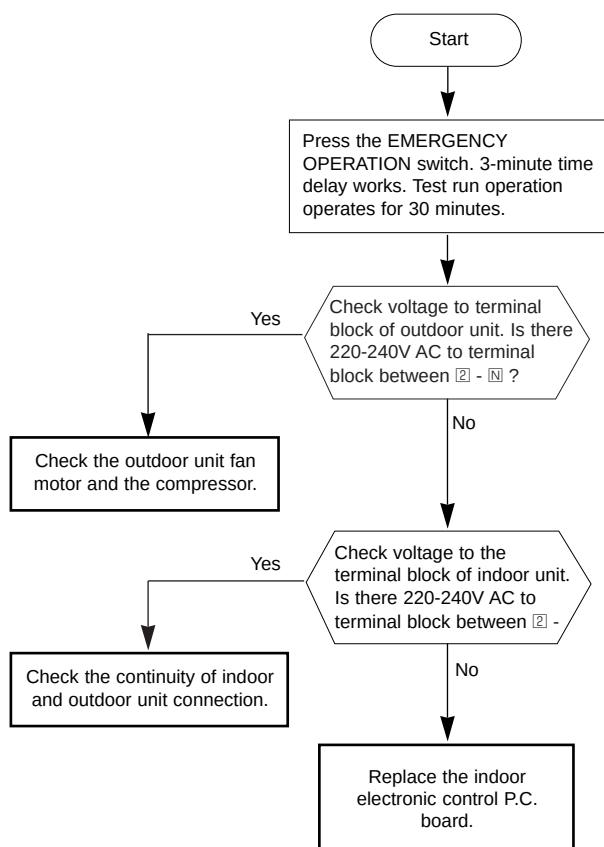
The unit doesn't operate with the remote controller.

Also, the OPERATION INDICATOR lamp doesn't light up by pressing the EMERGENCY OPERATION switch.



### ④ Check of outdoor unit

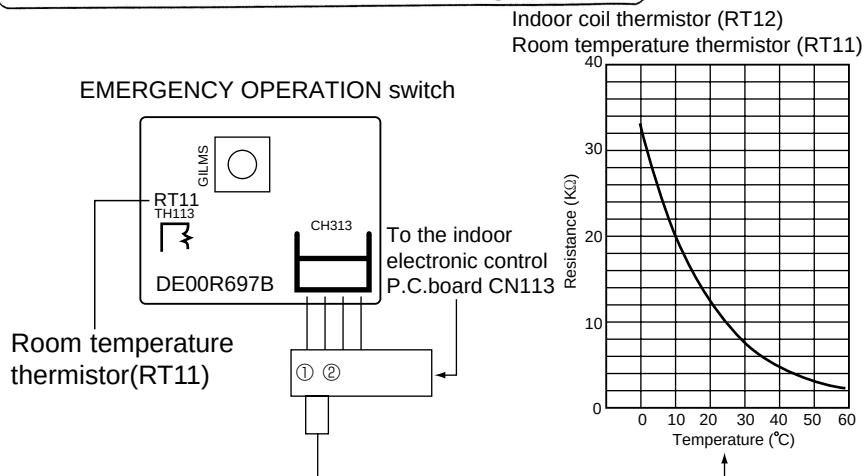
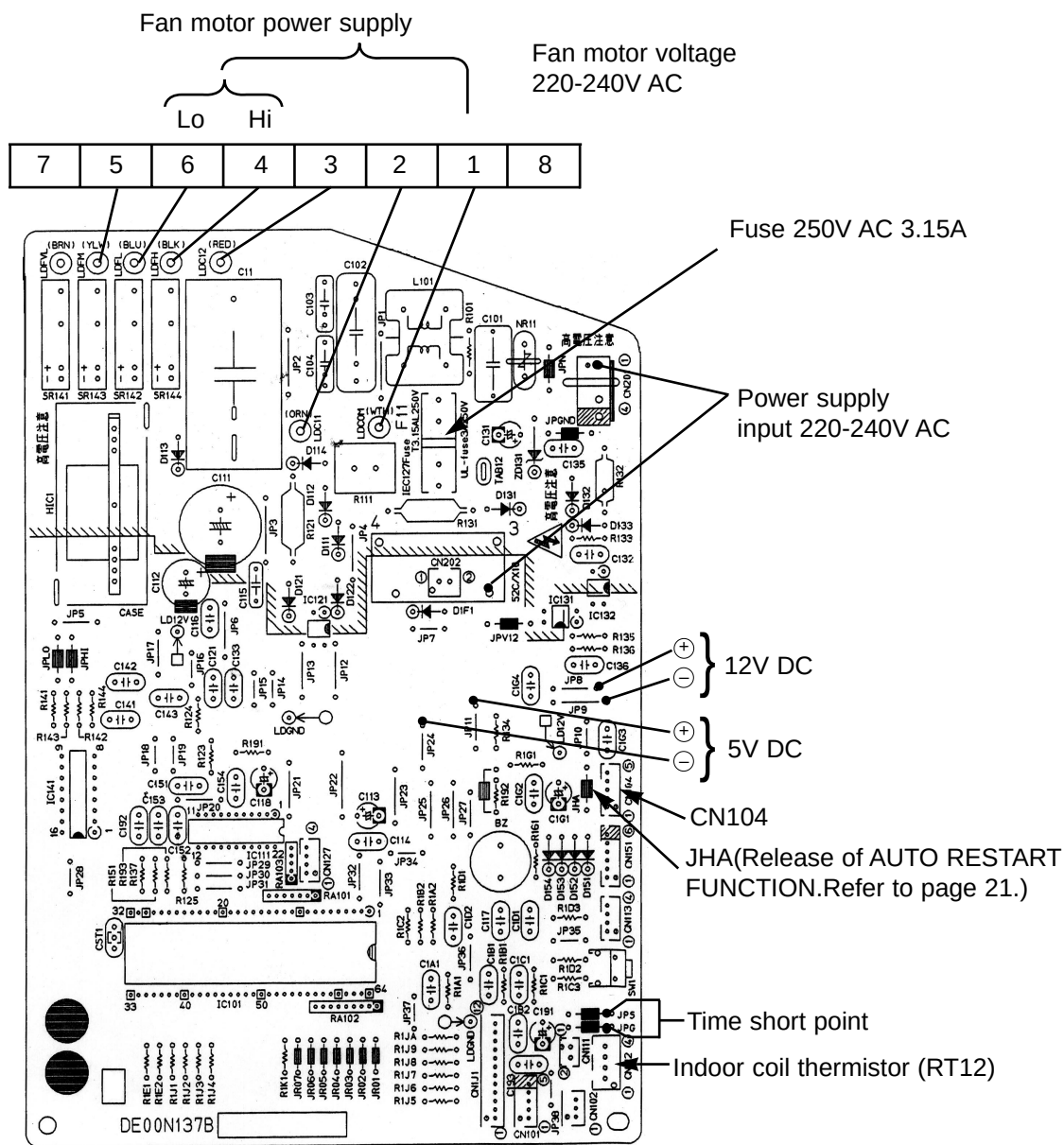
Compressor and / or outdoor fan does not operate.



## TEST POINT DIAGRAM AND VOLTAGE

MCF-13NV -E3

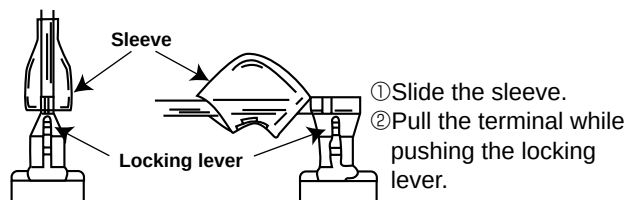
Indoor electronic control P.C. board



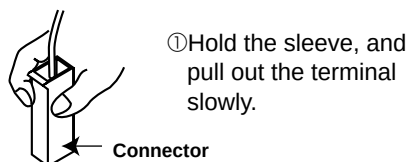
## &lt;"Terminal with lock mechanism" Detaching points&gt;

In case of terminal with lock mechanism, detach the terminal as shown below.  
There are two types ( Refer to (1) and (2)) of the terminal with lock mechanism.  
The terminal with no lock mechanism can be removed by pulling it out.  
Check the shape of the terminal and work.

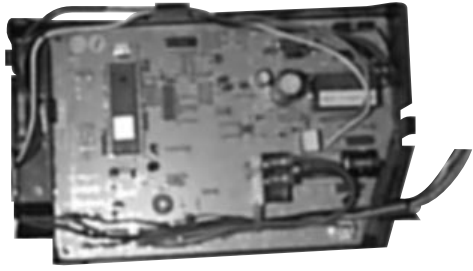
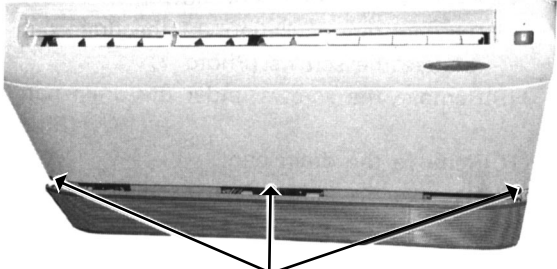
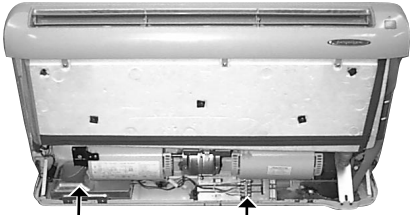
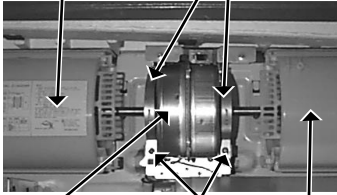
(1) Slide the sleeve and check if there is a locking lever or not.



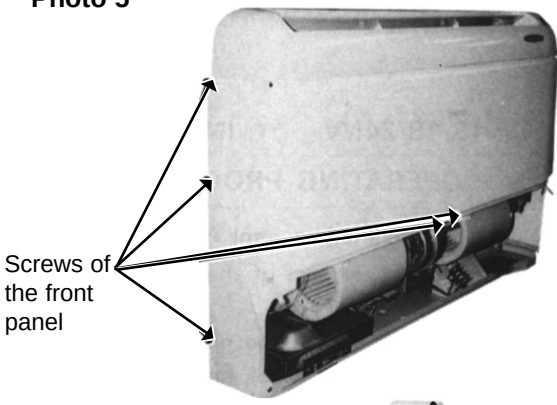
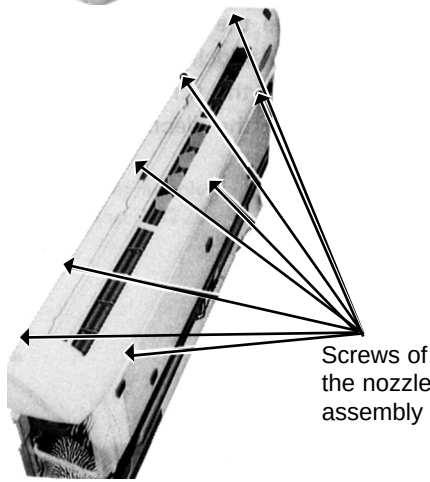
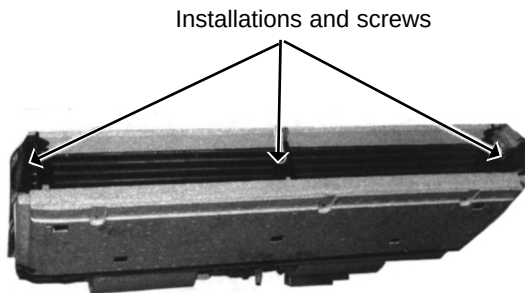
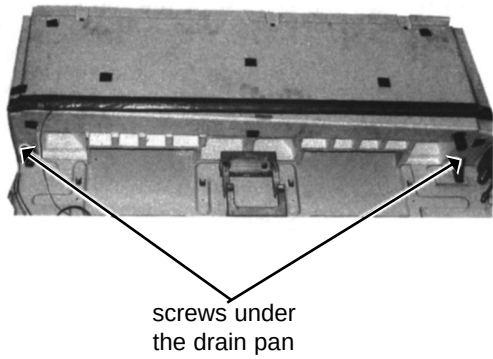
(2) The terminal with this connector is a terminal with lock mechanism



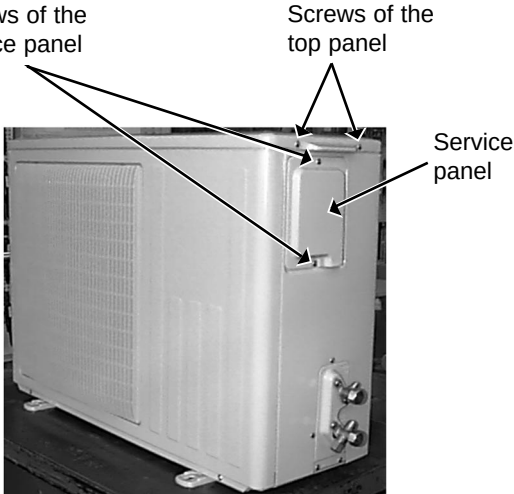
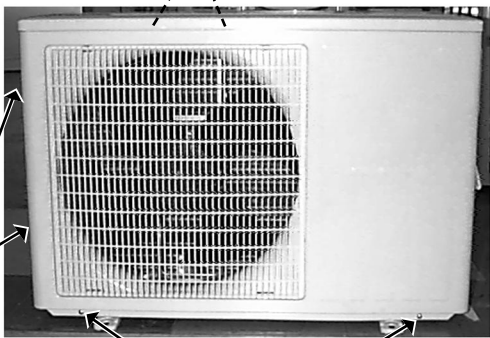
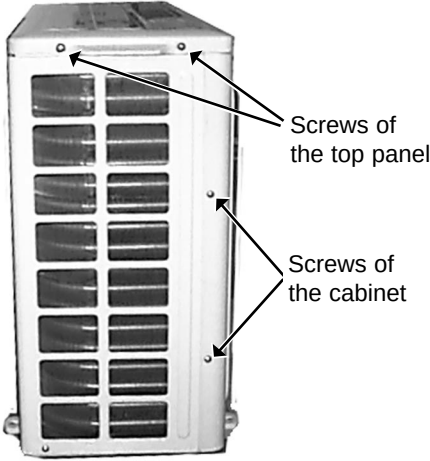
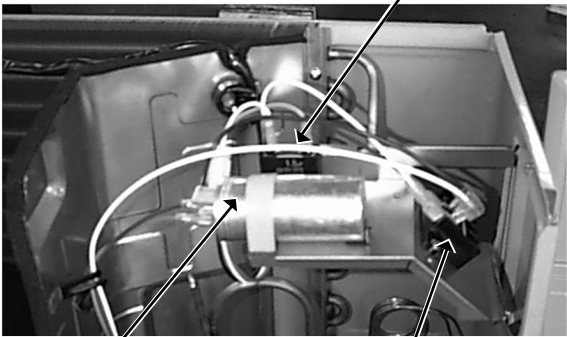
### 12-1. MCF-13NV-E3 INDOOR UNIT

| OPERATING PROCEDURE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | PHOTOS                                                                                                                                                                                                                                                                                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>1. Removing the electronic control P. C . board.</b></p> <ol style="list-style-type: none"> <li>(1) Pull out the upper part of the grill. ( photo 1. )</li> <li>(2) Remove the screws of the grill.</li> <li>(3) Remove screws of terminal block cover.<br/>Remove the terminal block cover and remove the terminal block.</li> <li>(4) Remove the screws of the electronic box cover.</li> <li>(5) Pull out the electronic control P.C. board.</li> </ol> <p><b>Photo 3</b></p>  | <p><b>Photo 1</b></p>  <p>Screws of the grill</p> <p><b>Photo 2</b></p>  <p>Electronic box      Terminal box</p> |
| <p><b>2. Removing the indoor fan motor</b></p> <ol style="list-style-type: none"> <li>(1) Remove the grill. ( Refer to 1. (1) (2) )</li> <li>(2) Remove the screws of the pipe support assembly.</li> <li>(3) Remove the fan casings.(upper)</li> <li>(4) Disconnect the connector of the indoor fan motor.</li> <li>(5) Disconnect the ground wire of the fan motor.</li> <li>(6) Remove the screws of the motor band and remove the catch.</li> <li>(7) Take out the sirocco fan and the indoor fan motor.</li> </ol>                                                    | <p><b>Photo 4</b></p>  <p>Fan casing (upper)      Motor band</p> <p>Indoor fan motor      Screws of the motor band      Fan casing(upper)</p>                                                       |

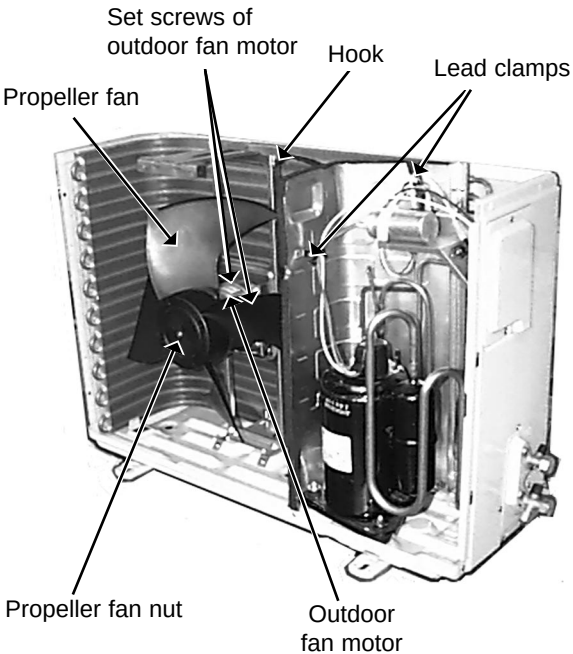
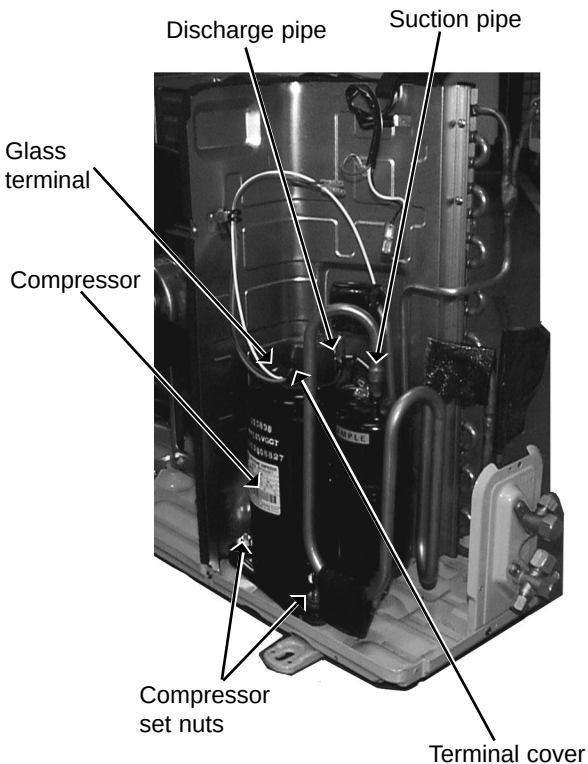


| OPERATING PROCEDURE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | PHOTOS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>3. Removing the indoor heat exchanger.</b></p> <p>(1) Remove the grill. (Refer to 1. (1) (2))</p> <p>(2) Remove the screws on both side and in front of the front panel. (Photo 5)</p> <p>(3) Remove the screws of the nozzle assembly. (Photo 6)</p> <p>(4) Remove the electronic box. (Refer to 1)</p> <p>(5) Remove the indoor fan motor. (Refer to 2)</p> <p>(6) Remove the screws of the motor support.</p> <p>(7) Remove the fan casing. (lower)</p> <p>(8) Remove the installations of the drain pan and remove the screws. (Photo 7)</p> <p>(9) Remove the screws under the drain pan. (Photo 8)</p> <p>(10) Remove the drain pan.</p> <p>(11) Remove the indoor heat exchanger.</p> | <p><b>Photo 5</b></p>  <p>Screws of the front panel</p> <p><b>Photo 6</b></p>  <p>Screws of the nozzle assembly</p> <p><b>Photo 7</b></p>  <p>Installations and screws</p> <p><b>Photo 8</b></p>  <p>screws under the drain pan</p> |

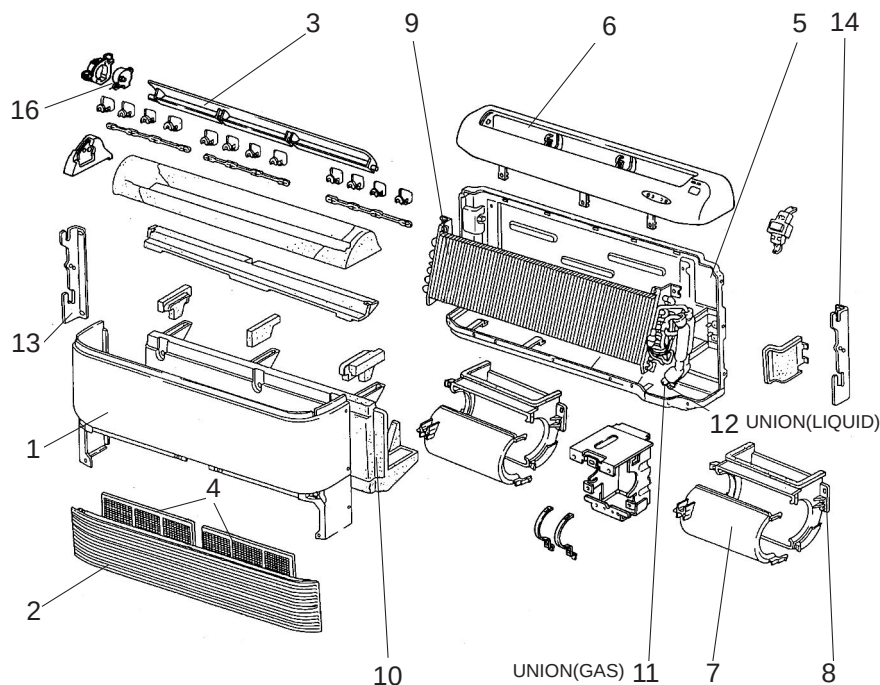
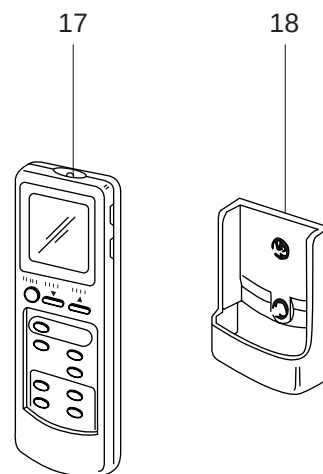
## 12-2. MUCF-13NV-E3 OUTDOOR UNIT

| OPERATING PROCEDURE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | PHOTOS                                                                                                                                                                                                                                                                                                                                                         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>1. Removing the cabinet</b></p> <ol style="list-style-type: none"> <li>(1) Remove the screws of the top panel.</li> <li>(2) Remove the screws of the service panel.</li> <li>(3) Remove the screws of the cabinet.</li> <li>(4) Remove the screws of the front panel and motor support.</li> <li>(5) Remove the service panel, and remove the screw from the insides.</li> <li>(6) Remove the top panel.</li> <li>(7) Remove the cabinet.</li> </ol> <p><b>Photo 3</b></p>  <p>Screws of the service panel</p> <p>Screws of the top panel</p> <p>Service panel</p> | <p><b>Photo 1</b></p>  <p>Screws of the front panel and motor support</p> <p>Screws of the cabinet</p> <p><b>Photo 2</b></p>  <p>Screws of the top panel</p> <p>Screws of the cabinet</p> |
| <p><b>2. Removing the electrical parts</b></p> <ol style="list-style-type: none"> <li>(1) Remove the service panel and the cabinet.(Refer to 1)</li> <li>(2) Remove the following parts. <ul style="list-style-type: none"> <li>•Compressor capacitor (C1)</li> <li>•Outdoor fan capacitor (C2)</li> <li>•Terminal block</li> </ul> </li> </ol>                                                                                                                                                                                                                                                                                                            | <p><b>Photo 4</b></p>  <p>Outdoor fan capacitor</p> <p>Compressor capacitor</p> <p>Terminal block</p>                                                                                                                                                                      |



| OPERATING PROCEDURE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | PHOTOS                                                                                                     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| <p><b>3. Removing the propeller fan and the outdoor fan motor</b></p> <p>(1) Remove the cabinet. (Refer to 1.)</p> <p>(2) Remove the propeller fan nut.</p> <p>(3) Remove the propeller fan.</p> <p><b>NOTE : Loose the propeller fan in the rotating direction for removal.</b></p> <p>When attaching the propeller fan, align the mark on the propeller fan and the motor shaft cut section.</p> <p>Set the propeller fan in position by using the cut on the shaft and the mark on the propeller fan.</p> <p>(4) Remove lead clamps and fan motor lead wires.</p> <p>(5) Remove screws fixing the fan motor.</p> <p>(6) Remove the outdoor fan motor.</p>                                                                                                                                                                                                | <p><b>Photo 5</b></p>   |
| <p><b>4. Removing the compressor</b></p> <p>(1) Remove the cabinet. (Refer to 1)</p> <p>(2) Remove the relay panel.</p> <p>(3) Remove the soundproof felt.</p> <p>(4) Remove the terminal cover on the compressor.</p> <p>(5) Disconnect lead wires from the glass terminal of the compressor.</p> <p>(6) Release gas from the refrigerant circuit.</p> <p>(7) Disconnect the welded part of the discharge pipe.</p> <p>(8) Disconnect the welded part of the suction pipe.</p> <p>(9) Remove nuts fixing the compressor.</p> <p>(10) Remove the compressor.</p> <p><b>NOTE</b></p> <ul style="list-style-type: none"><li>● Before using a burner, purge gas from the pipes until the pressure gauge shows 0 kg/cm<sup>2</sup>.</li><li>● Use the burner under the condition that gas can be released even when the inner pressure rises by heat.</li></ul> | <p><b>Photo 6</b></p>  |

## MCF-13NV - E3 (WH)

13-1. INDOOR UNIT  
STRUCTURAL PARTS13-2. ACCESSORY PART AND  
REMOTE CONTROLLER

## 13-1. INDOOR UNIT STRUCTURAL PARTS

Part number that is circled is not shown in the illustration.

| No. | Part No.    | Part name             | Symbol<br>in Wiring<br>Diagram | Q'ty/unit        | Remark   |
|-----|-------------|-----------------------|--------------------------------|------------------|----------|
|     |             |                       |                                | MCF-13NV-E3 (WH) |          |
| 1   | E02 179 000 | FRONT PANEL(WH)       |                                | 1                |          |
| 2   | E02 179 010 | GRILLE(WH)            |                                | 1                |          |
| 3   | E02 227 040 | VANE(WH)              |                                | 1                |          |
| 4   | E02 179 100 | AIR FILTER            |                                | 2                |          |
| 5   | E02 179 231 | BACK PANEL(IN)        |                                | 1                |          |
| 6   | E02 227 235 | NOZZLE(WH)            |                                | 1                |          |
| 7   | E02 179 237 | FAN CASING(U)         |                                | 2                |          |
| 8   | E02 179 238 | FAN CASING(L)         |                                | 2                |          |
| 9   | E02 179 620 | INDOOR HEAT EXCHANGER |                                | 1                |          |
| 10  | E02 215 700 | DRAIN PAN             |                                | 1                |          |
| 11  | E02 179 667 | UNION(GAS)            |                                | 1                | φ12.7    |
| 12  | E02 138 667 | UNION(LIQUID)         |                                | 1                | φ6.35    |
| 13  | E02 179 971 | INSTALLATION METAL(L) |                                | 1                |          |
| 14  | E02 179 972 | INSTALLATION METAL(R) |                                | 1                |          |
| ⑮   | E02 179 142 | GRILLE CATCH(WH)      |                                | 3                | 3PCS/SET |
| 16  | E02 227 303 | VANE MOTOR            | VM                             | 1                |          |

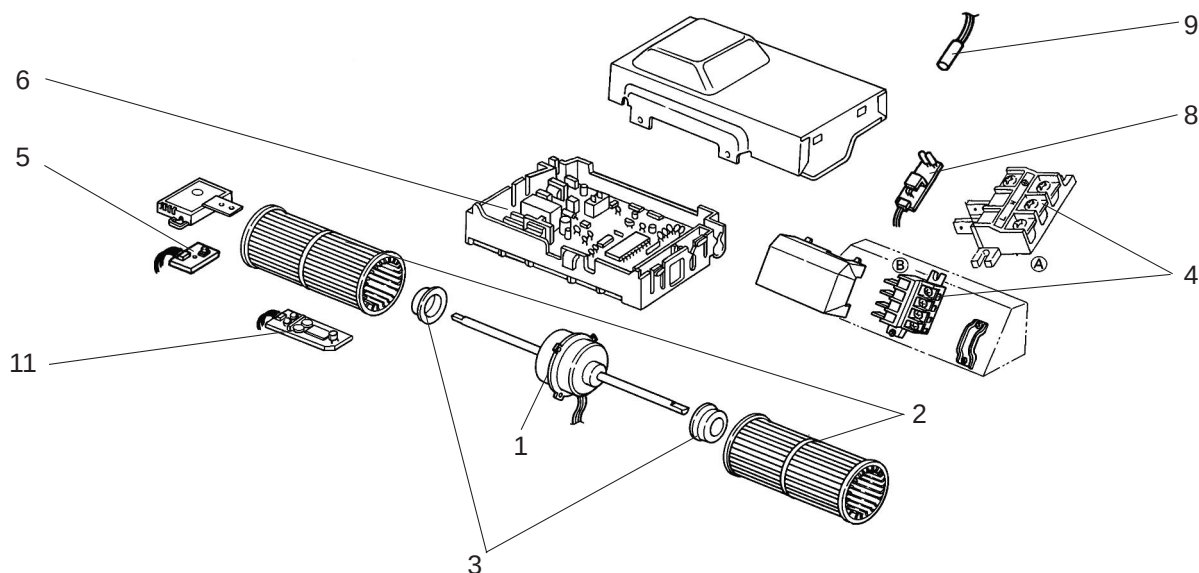
## 13-2. ACCESSORY PART AND REMOTE CONTROLLER

|    |             |                          |  |   |  |
|----|-------------|--------------------------|--|---|--|
| 17 | E02 227 426 | REMOTE CONTROLLER        |  | 1 |  |
| 18 | E02 141 083 | REMOTE CONTROLLER HOLDER |  | 1 |  |

### 13-3. INDOOR UNIT

#### FUNCTIONAL PARTS AND ELECTRICAL PARTS

#### MCF-13NV - E3 (WH)

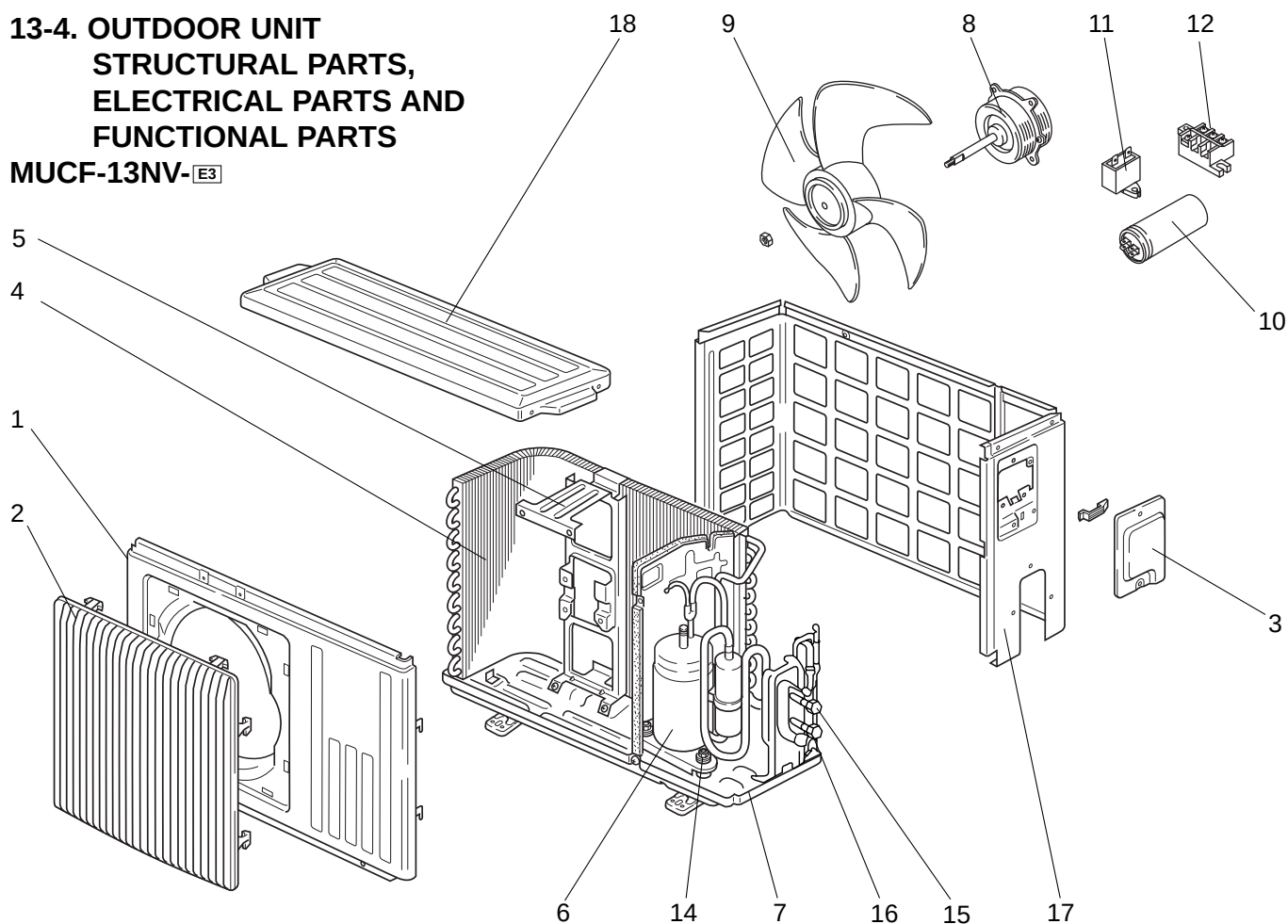


Part number that are circled are not shown in the illustration.

| No. | Part No.    | Part name                               | Symbol<br>in Wiring<br>Diagram | Q'ty/unit                                                                       | Remark              |
|-----|-------------|-----------------------------------------|--------------------------------|---------------------------------------------------------------------------------|---------------------|
|     |             |                                         |                                | MCF-13NV- <span style="border: 1px solid black; padding: 0 2px;">E3</span> (WH) |                     |
| 1   | E02 227 300 | INDOOR FAN MOTOR                        | MF                             | 1                                                                               | RA4V19-□□           |
| 2   | E02 179 500 | SIROCCO FAN                             |                                | 2                                                                               |                     |
| 3   | E02 179 505 | FAN MOTOR RUBBER MOUNT                  |                                | 2                                                                               | 2PCS/SET            |
| 4   | E02 227 375 | TERMINAL BLOCK                          | TB                             | 1                                                                               | Figure <sup>Ⓐ</sup> |
|     | E02 228 375 | TERMINAL BLOCK                          | TB                             | 1                                                                               | Figure <sup>Ⓑ</sup> |
| 5   | E02 215 328 | SWITCH &<br>ROOM TEMPERATURE P.C. BOARD |                                | 1                                                                               |                     |
| 6   | E02 324 450 | ELECTRONIC CONTROL P.C. BOARD           |                                | 1                                                                               |                     |
| ⑦   | E02 127 382 | FUSE                                    | F11                            | 1                                                                               | 3.15A               |
| 8   | E02 227 468 | RECEIVER P.C. BOARD                     |                                | 1                                                                               |                     |
| 9   | E02 324 307 | INDOOR-COIL THERMISTOR                  | RT12                           | 1                                                                               |                     |
| ⑩   | E02 336 385 | VARISTOR                                | NR11                           | 1                                                                               |                     |
| 11  | E02 324 452 | AUTO RESTART P.C. BOARD                 |                                | 1                                                                               |                     |

### 13-4. OUTDOOR UNIT STRUCTURAL PARTS, ELECTRICAL PARTS AND FUNCTIONAL PARTS

MUCF-13NV-E3

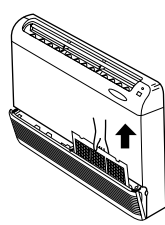


Part number that are circled are not shown in the illustration.

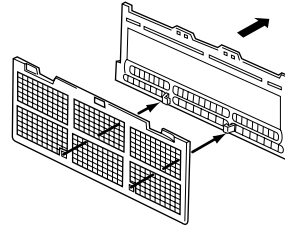
| No. | Part No.    | Part name              | Symbol<br>in Wiring<br>Diagram | Q'ty/unit                                                                   | Remark                     |
|-----|-------------|------------------------|--------------------------------|-----------------------------------------------------------------------------|----------------------------|
|     |             |                        |                                | MUCF-13NV- <span style="border: 1px solid black; padding: 0 2px;">E3</span> |                            |
| 1   | E02 336 232 | CABINET                |                                | 1                                                                           |                            |
| 2   | E02 336 521 | GRILLE(OUT)            |                                | 1                                                                           |                            |
| 3   | E02 336 245 | SERVICE PANEL          |                                | 1                                                                           |                            |
| 4   | E02 336 630 | OUTDOOR HEAT EXCHANGER |                                | 1                                                                           |                            |
| 5   | E02 336 515 | MOTOR SUPPORT          |                                | 1                                                                           |                            |
| 6   | E02 141 900 | COMPRESSOR             | MC                             | 1                                                                           | RH-231VHAT                 |
| 7   | E02 340 290 | BASE                   |                                | 1                                                                           |                            |
| 8   | E02 438 301 | OUTDOOR FAN MOTOR      | MF                             | 1                                                                           | RA6V33-□□                  |
| 9   | E02 336 501 | PROPELLER FAN          |                                | 1                                                                           |                            |
| 10  | E02 079 353 | COMPRESSOR CAPACITOR   | C1                             | 1                                                                           | 30 $\mu$ F/440VAC          |
| 11  | E02 095 350 | OUTDOOR FAN CAPACITOR  | C2                             | 1                                                                           | 1.5 $\mu$ F/440VAC         |
| 12  | E02 197 374 | TERMINAL BLOCK(OUT)    | TB                             | 1                                                                           |                            |
| ⑬   | E02 414 936 | CAPILLARY TUBE         |                                | 1                                                                           | $\phi$ 3.0X $\phi$ 1.6X300 |
| 14  | E02 075 506 | COMPRESSOR RUBBER SET  |                                | 3                                                                           | 3RUBBERS/SET               |
| 15  | E02 139 662 | STOP VALVE(LIQUID)     |                                | 1                                                                           | $\phi$ 6.35                |
| 16  | E02 340 661 | STOP VALVE(GAS)        |                                | 1                                                                           | $\phi$ 12.7                |
| 17  | E02 339 233 | BACK PANEL(OUT)        |                                | 1                                                                           |                            |
| 18  | E02 336 297 | TOP PANEL              |                                | 1                                                                           |                            |
| ⑰   | E02 095 382 | FUSE                   | F                              | 1                                                                           | 250V2A                     |

### 14-1. AIR CLEANING FILTER

- If the air cleaning filter is clogged, it may reduce the air conditioner capacity or cause condensation at the air outlet.
- The air cleaning filter is disposable. The standard usable term is about 4 months. However, if the color of the filter turns to dark brown, replace soon.



Remove the air filter and the air cleaning filter together.

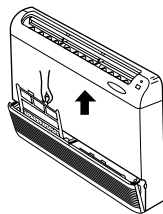


Separate the air cleaning filter (white bellow type) from the air filter.

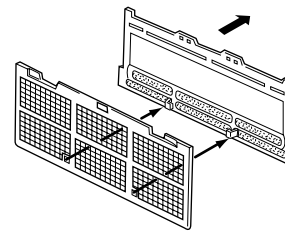
| Model        | Part No.   |
|--------------|------------|
| MCF-13NV- E3 | MAC-1200FT |

### 14-2. DEODORIZING FILTER

- Clean the filter every two weeks. When it becomes too dirt, clean it more often.
- Replace the filter with a new one when its color can not be restored even after washing or when the filter becomes dark.
- Standard interval for the filter replacement is about 1 year.



Remove the air filter and the deodorizing filter together.



Separate the deodorizing filter (gray sponge type) from the air filter.

| Model        | Part No.   |
|--------------|------------|
| MCF-13NV- E3 | MAC-1700DF |



HEAD OFFICE MITSUBISHI DENKI BLDG. MARUNOUCHI TOKYO 100-8310 TELEX J24532 CABLE MELCO TOKYO